



Establishing future-oriented training and qualification quality standards for fostering a broad uptake of sustainable energy skills in the European construction sector

D2.1 Baseline of national qualification standards and recognition policies

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Name of Author(s)	Organization(s)
<i>Riccardo Cariani</i>	<i>IIPLE</i>
<i>Mara Corbella</i>	<i>IIPLE</i>
<i>Cosimo Marinosci</i>	<i>IIPLE</i>
<i>Luisa Sileni</i>	<i>IIPLE</i>

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Executive summary

Deliverable D2.1 of TRAIN4SUSTAIN project is titled "Baseline of national qualification schemes and recognition policies". The activities leading to this document are the starting point of the whole project, whose aim is to foster a common understanding of sustainable energy skills across Europe by promoting a competence quality standard, a European Skills Registry and a Skill Passport.

The foundation for the first step of task 2.1 has been a deep analysis of the national contexts of the countries involved in the project: Hungary, Germany, Italy, France and Spain.

The main aspects considered and examined by this report are:

- The previous and ongoing projects, programmes and frameworks developed at an international level;
- The national qualification schemes and training courses in the field of energy efficiency and constructions;
- The perception of market's actors concerning the availability and quality of training courses and certification programmes in the field of energy efficiency of the construction sector.

In chapter 2 of this document, an in-depth analysis of the national qualification schemes available in each country is provided; the schemes collected by partners are presented in the annexes. The documents have been analysed and compared to highlight similarities and gaps in the qualifications and trainings. These findings will be relevant in the following tasks of the project, when a common competence standard will be developed by the consortium partners.

In chapter 3 of the deliverable, the results of the online surveys and of the direct interviews conducted within 3 distinct, pre-defined target groups are described. The data and findings identified through the questionnaires have been interpreted as a result of the in-depth comments given by the interviewed people.

The results of these two parallel analyses have been summarized and explained in the last chapter of the document.

1 State of the art: Previous and ongoing projects, programmes and frameworks

The aim of TRAIN4SUSTAIN (T4S) project is to stimulate the demand for qualified professionals in the construction sector by increasing the acceptance of regional and national qualifications and skills in the EU construction market. The T4S project will promote a common understanding of sustainable energy skills across Europe by defining a qualification standard of skills, a European skill register and a skills passport to facilitate transnational recognition of learning outcomes and level of expertise of existing qualifications and vocational trainings.

The main starting point is the analysis of the context and the current situation; in-depth researches have been conducted through several activities:

- the mapping of the already existing qualification schemes in the field of energy sustainability, recognized at national or regional level;
- the collection of data related to how current qualification schemes in the construction sector are perceived by relevant actors in the labour market.

The first activity was carried out by collecting pertinent information on the energy sustainability qualification schemes that are available in each partners country. In addition, initiatives and projects in the field of sustainable energy skills were analysed in order to collect relevant inputs for qualification and training schemes.

The ongoing projects, programmes and frameworks considered for this study are:

- BUILD-UP Skills Initiative (national roadmaps)
- PROF/TRAC H2020 Project
- CESBA initiative
- EU Level(s) Framework

IIPLE contacted the leading organizations of the initiatives indicated above, carefully analysing the outcomes of these projects, for providing input and aspects for T4S implementation.

Furthermore, IIPLE has taken advantage of existing transnational qualification frameworks for building professionals in the field of skills of construction workers and professionals, that are included in the BUILD UP Skills initiatives, in the Prof/Trac scheme, in the framework produced by the BIM community and in the recently developed EU framework for energy and resource efficient buildings like Level(s).

1.1 BUILD UP Skills initiative

The aim of Buildup initiative has been to *"support Member States in assessing training needs for the construction sector, developing strategies to meet them, and fostering effective training schemes"*. The BUILD UP Skills Initiative has helped member states in developing national qualification roadmaps for 2020 and helping in the preparation and implementation of training and certification schemes.

BUILD UP Skills started in 2011 under the Intelligent Energy Europe (IEE) programme to boost continuing or further education and training of craftsmen and other on-site construction workers and systems installers in the building sector. Its primary aim was to increase the number of qualified workers across Europe to deliver building renovations which offer high-energy performance as well as new, nearly zero-energy buildings (Nzeb).

The BUILD UP Skills Initiative consists of two pillars:

- Pillar I supporting the development of national status-quo analysis and national roadmaps (2011-2013);
- Pillar II supporting the setup or upgrade of qualification and training schemes (2013-2017).

The initiative based on the roadmaps developed in Pillar I, addressed skills in relation to energy efficiency, renewable energy systems and measures in building, developed national qualification platforms and roadmaps in order to train the building workforce. In doing so, a host of local and national stakeholders have been mobilised.

The second phase, known as Pillar II, aimed at designing and implementing new qualification and training schemes and/or upgrade existing schemes, based on the roadmaps developed in Pillar I.

The skills targeted by BUILD UP Skills Pillar II projects were relevant and differed from country to country as they addressed the needs and skills gaps identified in each context as part of the former phase of Pillar I: Status quo analysis and roadmap.

These skills can be grouped into five broad categories:

- 1) Building fabric (e.g. façade workers/ plasterer, building envelope, roofers, outdoor/ indoor carpenters, bricklayers, insulation installer);
- 2) Building services (e.g. electrical installers, ventilation, air conditioning installation, heating systems installation);
- 3) Energy (e.g. skills in energy efficiency, renewable energy systems, heat pumps, boilers);
- 4) Building management (e.g. foremen);
- 5) Building operator.

Most of the skills targeted by the projects were in the categories of building fabric, building services, and energy sources.

While looking inside those categories, the following specific skills were the most popular:

- Insulation installers;
- Heating system installers;
- Renewable energy systems installers;
- Ventilation and air conditioning installers;
- Façade workers;
- Plasterers;
- Roofers;
- Electrical installers;
- Heat pump installers.

These skills and categories of competence is being analysed and taken into account in TRAIN4SUSTAIN project, since they are included in the qualifications and trainings schemes considered.

Thanks to Build Up Skills initiative, training courses, methods for establishing voluntary qualification schemes, skills frameworks and methodologies for the recognition of prior learning have been developed.

The factors that influence the aspects described above are:

- the characteristics of the construction market in a country,
- the legal frameworks for education / qualifications of construction skills,
- language and geographical characteristics.

The BUILD UP Skills initiative has been continued via the construction skills strand of the European Horizon 2020 research and innovation programme aiming to support and further develop multi-country qualification and training schemes. Some examples of Horizon Projects approved: BUStoB, ingREeS, MEnS, PROF-TRAC, Train-to-NZEB, Fit-to-nZEB, NEWCOM, BIMplement, Net-UBIEP, BIMEET.

1.2 CESBA - Common European Sustainable Built Environment Assessment

CESBA is a collective European initiative that provides knowledges on harmonised built environment assessment.

CESBA's goal is to facilitate diffusion and adoption of sustainable built environment principles through the use of harmonized assessment systems in the whole life cycle of the built environment.

The CESBA-Network has been developing European projects, instruments and approaches to work towards a sustainable built environment assessment.

One of the projects examined in relation to the T4S project was the CESBA MED Project – Sustainable MED Cities.

Co-financed by the Interreg MED Program, it aims at supporting low-carbon strategies and energy efficiency in the territories of the Mediterranean area and in particular has the objective of increasing the capacity for a better energy management in public buildings on a transnational level.

The main objective of the CESBA MED Project was to support the development of plans for the energy efficiency of public buildings, in the context of the urban district in which they are located. A common sustainability assessment framework at urban level and 8 tools of regional evaluation was defined, starting from the comparison and capitalization of methodologies, tools and indicators already developed by 10 different European projects of the 2007-2013 programming.

Moreover, the CESBA MED includes a Training System tailored for two specific target groups:

- Technicians: this group includes professionals, SMEs technicians, urban planners, public bodies' technical staff. All of them have a technical profile and need to learn how to use CESBA SNTools both in terms of technical and functional / operational aspects. A further subdivision of this target group into two more specific categories, is deemed necessary to reflect the different ways the CESBA MED tools and methodologies that will be used in defining and implementing urban plans. The two subgroups are the "assessment process coordinators" and the "area experts";
- Decision-makers: this group includes policy makers, investors, developers, public bodies managers. They need to reinforce their capability to set up high quality energy retrofitting actions on public buildings or new construction projects as part of effective urban development plans by using CESBA MED tools and methodology.

1.3 PROF-TRAC Professional multi-disciplinary Training and Continuing Development in skills for NZEB principles

The PROF/TRAC European Qualification Scheme on nZEB skills aims at overcoming market barriers for a successful design and construction process of nearly Zero Energy Buildings. Specifically, the main issues addressed by the qualification scheme were:

- The lack of information on available qualifications and training materials;
- The lack of mappings and qualifications available of the needed skills for the specific target groups;
- Description of harmonised European qualifications on nZEB design and construction.

The work carried out in the project led to the definition of harmonized work fields, nZEB competences and skill levels and the description of qualifications across Europe. This framework forms a solid foundation for comparing NZEBs skills required for different professions and for the same profession from one country to another.

PROF/TRAC has provided an open training platform and qualification scheme for continuing professional development for professionals in the building sector. This platform targets technical experts, architects and building managers involved in nZEB design, construction and maintenance.

PROF/TRAC has established skills levels and set up recommendations about the minimum skills level for each work field per skills and qualifications. This qualification framework answers to the need of defining and mapping nZEB related skills in a harmonized way across work fields.

The skills levels about nZEBs are described in terms of learning outcomes relevant to the qualification. The levels range from 1 to 5, where 5 is the highest degree of competence. Level 1 of the PROF/TRAC qualification schemes requires learning outcomes similar to EQF 4; level 2 and 3 correspond to learning outcomes of EQF 5 or 6; level 4 calls for learning outcomes comparable to EQF 6 or 7 and level 5 corresponds to EQF 7 or 8.

	Explanation of the skills levels	Examples	Study effort
0	Not applicable /no knowledge and skills required		
1	Has little knowledge and skills with respect to the relevant field / technology (mostly <i>outside</i> the own field of expertise).		
1	Is able to communicate in <i>general terms</i> about a specific technology with project partners. Has knowledge of definitions and is aware of common applications in the field.	Knowledge of an architect on heat pumps in general terms, knowing the influence of parameters (such as temperatures and heat source). Knowledge of a mechanical engineer on thermal bridges and air tightness (its' definition, parameters).	0→1 Self-study, online, ½ day
2	Understands basic knowledge and has practical skills within the field / technology, is able to solve simple problems by selecting and applying basic methods, tools, materials and information (mostly <i>outside</i> the own field of expertise).		
2	Is able to make estimating or simple calculations and designs by given instructions or common methods. Is able to read and understand technical drawings. Is able to discuss with other professionals on a more detailed level.	Architects' ability to estimate needed m ² of PV-panels, based on total needed kWh/a. Mech. Engineers' ability to understand influence of air tightness on energy use and heat loss.	1→2 Self-study or in classroom, 1 day
3	Has comprehensive, factual and theoretical knowledge and skills within the field / technology, is capable of solving problems within the field.		
3	Is able to make detailed calculations and designs (drawings), can oversee the consequences of choices and parameters within the field. Is aware of the influence of choices made on the work of other professionals.	Engineers ability to make a calculation and optimize the design within the own field of expertise (e.g. heat loss calculation). Is able to choose the right materials and products according to their specifications.	2→3 Classroom, 2 days
4	Has advanced knowledge involving a critical understanding of theories and principles and skills, required to solve complex and unpredictable problems in the field and is aware of the boundaries.		
4	Is able to make and lead complex designs in the field of expertise, and integrate with other disciplines. Is aware of the influence of choices in the design on the energy use of the building. Uses "best practices".	Can combine different technologies such as envelope systems, heat pumps, insulation, in order to design and calculate a complete energy concept of the building. Is able to choose sustainable materials in relation to NZEB.	3→4 Classroom, 4 days Integrated team project
5	Has specialized knowledge and problem-solving skills, partly at the forefront of knowledge in the field, in order to develop new knowledge and procedures and to integrate knowledge from different fields.		
5	According level 4, plus: Is able to optimize and try out application of new, not common, technologies and innovations. Designs/invents new "best practices".	Is leading in the field of expertise. Makes use of CFD calculations if needed.	4→5 Classroom, 5 days Integrated team project

Figure 1-1 Nzeb skill levels

Despite being comparable to the EQF learning outcomes, the nZEB skills levels are not related to the EHEA qualification, meaning that each building professional having an official EQF level from 5 to 8 (i.e. the EQF range of white-collars in terms of education) can add to his/her EQF an nZEB skill level ranging from 1-5.

Table 5. PROF/TRAC recommended nZEB skills levels per skill and per work field

Work field	Architecture	Civil Engineering	Electrical Engineering	Mechanical Engineering	Building Management	Construction Management	Financing and Procurement
Reference professions	Architect	Civil Engineer	Electrical Engineer	Mechanical Engineer	Facility Manager	Project Manager	Procurer
		Construction engineer	ICT engineer	Building automation eng.	technical energy engineer	Cost engineer	project developer
		structural engineer		Energy engineer	operator	Quality assurance	
TECHNOLOGY, INTERDISCIPLINARY SKILLS AND PROFESSIONS							
EM	ENERGY MANAGEMENT						
EM1	Smart grid systems	2	1	5	3	3	1
EM2	Domotic systems	2	1	4	4	3	1
EM3	Building management systems	2	1	4	5	3	1
EP	ENERGY PRODUCTION (on-site and nearby renewable energy production and off-site renewable energy)						
EP1	Geothermal energy	2	2	3	4	2	1
EP2	Biomass	2	2	3	4	2	1
EP3	Biogas	2	2	3	4	2	1
EP4	District heating and cooling	2	2	3	4	2	1
EP5	Heatpumps	2	2	3	5	2	1
EP6	Solar power systems for electricity generation	3	3	5	4	2	1
EP7	Solar thermal systems for cooling generation	2	2	3	4	2	1
EP8	Solar thermal systems for domestic hot water and/or heating generation)	2	2	3	5	2	1
EP9	Mini wind power	3	3	4	3	2	1
EP10	Combined Heat and Power (CHP)	2	2	4	4	2	1
ER	ENERGY REDUCTION of construction						
ER1	Insulation	5	4	1	2	1	2
ER2	Air tightness building	5	4	1	2	1	2
ER3	Micro climates	4	3	1	2	1	2
ER4	Envelope systems	5	4	1	2	1	2
ER6	Window and/or glazing systems	4	4	1	2	1	2
ER	ENERGY REDUCTION of installations						
ER5	Hot water systems	3	2	3	4	2	2
ER7	Heating and cooling emission systems	3	2	3	5	2	2
ER8	Electric heating systems	3	2	4	4	2	2
ER9	Artificial lighting systems	3	2	5	3	2	2
ER10	Ventilation systems	3	2	3	5	2	2
IS	SUSTAINABLE INTEGRATED DESIGN						
IS5	Sustainable architectural design	5	4	3	3	2	2
IS6	Integrated design	5	4	4	4	3	3
IS7	Sustainable building materials	5	4	3	3	3	2
IS8	Sustainable installation materials	3	3	4	4	3	2
IS9	Environmental (indoor) quality	4	3	4	4	3	2
IS	INTERDISCIPLINARY SKILLS						
IS1	Communication	4	3	3	3	3	4
IS2	Information management	5	3	3	3	3	4
IS3	Collaboration	4	4	4	4	4	4
IS4	Quality assurance	4	3	3	3	3	3

Figure 1-2 PROF/TRAC list of skills for Energy Efficiency of buildings

This table is the final matrix produced by the PROF/TRAC project; it is one of the starting points for the first tasks and analysis of T4S Project (T2.1 and T2.2). To the 5 categories already included in the PROF/TRAC matrix (energy management, energy production,

energy reduction, sustainable integrated design, interdisciplinary skills) in T4S, we complemented with two more categories, in order to be more inclusive and thorough: Innovative Digital Solutions and Neighbourhood Solutions.

In the case of the PROF/TRAC project, the skills and respective level of competence are referred to each work field (in the top row); instead, the focus of T4S is on the level of knowledge attributed to each professional qualification schemes. Following the method already developed and tested by the consortium of the PROF/TRAC project, T4S compares the level of each skill for different professional profiles, recognised in the countries of the project partners.

Following this approach, it has been possible to highlight which knowledge and skills are relevant and, therefore, reflected in training courses and programmes. The development of this matrix underlined the eventual gaps in training offers in the contexts considered. In this way, the partners of T4S will be able to identify the gaps between what is demanded and required by market and employers and the skills effectively mastered by workers and professionals.

These evaluations will be the premises for the following activities of T2.2 and for the development of the competence quality standard.

1.4 EU LEVEL(s) - The European framework for sustainable buildings

Level(s) framework is an important tool to help architects, builders and public authorities to play their role by improving the buildings we live and work in.

Level(s) is designed to improve the sustainability of buildings throughout their lifecycle, helping professionals to deliver better buildings – while also speeding Europe's transition towards a more circular economic model.

EU Level has developed a common EU reference framework for key sustainability indicators for residential and office buildings, and has provided a set of indicators and common parameters for measuring the performance of buildings over their life cycle.

Beyond environmental performance, which is the most important aspect, it has also allowed to evaluate other related and significant aspects of efficiency, using health-related indicators and tools, such as well-being, life cycle costs and potential future performance risks.

Level (s) has intended to provide a general language for the sustainability of buildings. Goal of this common language is to allow interventions at the level of the entire building that can bring an evident contribution to the achievement of broader objectives in the field of environmental policy.

Eu Level (s) is structured as follows:

1. macro-objectives: a series of six general macro-objectives for the Level (s) framework contribute to the achievement of the strategic objectives of the EU and the Member States in areas such as energy, use and disposal of materials, water and indoor air quality;
2. core indicators: nine common indicators for measuring the performance of buildings, which contribute to the achievement of each macro-objective;
3. lifecycle tools: four scenario tools and one for data collection, together with a simplified life cycle assessment (LCA) method, designed to foster a more holistic analysis of building performance based on evaluation of the entire life cycle;
4. classification of value and risk: a system based on a checklist and a classification provides information on the potential positive contribution to the assessment economic value of the property and the underlying reliability of performance assessments made with Level (s).

Level (s) also aims at promoting a logic based on the whole life cycle, and at shifting the focus of users from initial interest in individual aspects of building performance to

one more holistic perspective, aiming at a wider use at European level of the cycle assessment life cycle assessment (LCA) and life cycle cost assessment (LCCA).

In conclusion, the Level(s) project has produced a new framework for resource efficient buildings, indoor air quality user comfort, smartness of buildings, district solutions. This new approach has contributed to the development of the TRAIN4SUSTAIN Project: as already mentioned, to the list of areas of expertise taken into consideration by the PROF/TRAC Project, new categories and competencies has been added. These new areas have been inspired by the results of the Eu Level(s) Project activities. The total amount of areas of expertise has been consequently augmented to 44, as depicted in the table below.

EM	ENERGY MANAGEMENT
EM1	Smart grid systems
EM2	Domotic systems (homes)
EM3	Building management systems BMS (utility buildings)
	Other:
EP	ENERGY PRODUCTION (on-site and nearby renewable energy production and off-site renewable energy)
EP0	Heating and Cooling GENERAL
EP1	Geothermal energy systems
EP2	Biomass energy production
EP3	Biogas energy production
EP4	District heating and cooling
EP5	Planning and design of heat pump installations
EP6	Solar power systems for electricity generation
EP7	Solar absorption cooling
EP8	Solar thermal energy systems for domestic hot water and/or heating generation
EP9	Mini wind power generation
EP10	Combined Heat and Power (CHP) generation
	Other:
ER	ENERGY REDUCTION
ER1	Insulation
ER2	Air tightness building
ER3	Micro climates
ER4	Envelope systems
ER5	Hot water systems
ER6	Window and/or glazing systems
ER7	Heating and cooling emission systems
ER8	Electric heating systems
ER9	Artificial lighting systems
ER10	Ventilation systems
	Other:
IS	SUSTAINABLE INTEGRATED DESIGN
IS5	Sustainable architectural design
IS6	Integrated design
IS7	Sustainable building materials
IS8	Sustainable installation materials
IS9	Environmental (indoor) quality
	Other:
IDS	Innovative Digital Solutions
IDS1	Building Information Modelling (BIM)
IDS2	GIS
IDS3	Lean Management
IDS4	Intelligent buildings
IDS5	smart meters
IDS6	sensors
	Other:
NS	Neighbourhood Solutions
NS1	district heating/cooling
NS2	shared renewables
NS3	economy of scales
	Other:
IS	INTERDISCIPLINARY SKILLS
IS1	Communication
IS2	Information management
IS3	Collaboration
IS4	Quality assurance
IS10	Economics
IS11	Procurement
	Other:

Figure 1-3 List of areas of expertise (44) considered in T4S Project

2 Qualification scheme of the energy efficiency experts – analysis of the national qualification schemes

2.1 Objectives and methodology of the analysis

The aim of the analysis is to obtain a comprehensive overview of the qualification schemes and current trainings offered in the field of sustainable energy, in the target countries and regions of the TRAIN4SUSTAIN project.

This analysis is a preparatory activity, capable of providing key elements to achieve a fundamental objective of the T4S project: to harmonise existing qualification schemes and skill level in Europe and develop a common understanding of skill levels from qualifications through establishing a competence quality standard.

Specifically, the following initiatives were carefully considered, as introduced in the previous chapter: PROF/TRAC scheme and BUILD UP Skills initiative, recently developed EU frameworks for energy and resource efficient buildings (e.g. Level (s)), the common EU framework of key sustainability indicators for offices and residential buildings. These approaches will be harmonized and integrated into a competence quality standard in the later tasks of the TRAIN4SUSTAIN project.

Currently, trainings in sustainable energy skills varies from country to country, and even within countries.

As part of the analysis, existing qualification schemes and training programs, with reference to sustainable energy and energy efficiency, available in the countries of the partnership and on a “pan-European” scale (e.g. BREEAM), were considered.

For this analysis, a common template has been created by IIPLE, including the following information:

DENOMINATION OF THE PROFESSIONAL QUALIFICATION OR TRAINING SCHEME
EQF Level , if any ¹ : represents the level of European training qualification if present
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION a brief description of the qualification highlighting the skills that can be achieved and which professional profile can be acquired.
TARGET GROUPS ADDRESSED
DIDACTIC METHOD the teaching method to provide any course (classes, workshops, internships)
DURATION OF COURSE duration of the course or activity necessary to obtain the professional qualification
PREREQUISITES the formal pre-requisites for access to the course or to access the professional qualification (scholastic, academic, professional, on field experience, EQF level), if relevant
QUALIFICATION RENEWAL renewal of the qualification after a certain number of years
QUALIFICATION REGISTER a list, public or not, of individuals who achieved the certification
REFERENCE LEGISLATION , the main legislative reference which can be regional, national or international
PROVIDING INSTITUTION provider of the training course or qualification
SPONSORING INSTITUTION institution or organization that promotes the training course

With regards to the target group, it should be noted that TRAIN4SUSTAIN takes into consideration different professions, relevant to the design and planning, renovation, maintenance and management of buildings, covering the entire life cycle of the building.

TRAIN4SUSTAIN consortium has divided these professions into 3 main target groups:

- The Design & Planning category represents professions related to the design, verification and control of buildings. For example, Architects, Civil and environmental engineers, Building Energy Consultants / Assessors, Sustainability Consultants / Assessors belong to this category.

¹ <https://europa.eu/europass/en/european-qualifications-framework-eqf>

The EQF is an 8-level learning outcomes framework for all types of qualifications, which serves as a 'translation' tool between different national qualifications frameworks. This framework helps to improve the transparency, comparability and portability of people's qualifications and makes it possible to compare qualifications from different countries and institutions.

- The Building Construction Works group includes operators involved in the execution of building works specialized in the energy sector, such as the blue and white collar workers, craftsmen in various areas, technicians and installers and constructors.
- The Building Maintenance and Management category concerns the figures involved in the maintenance and management of buildings, who deal with the proper functioning of the building or parts of it, or technicians responsible for managing the building's energy processes. Facility managers or building operators can belong to this category.

For the purposes of the analysis, each qualification scheme or training course was assigned to a prevalent target group, on the basis of the information received from the partners. In this case, the criterion for assigning the prevailing category has been established on the basis of the type of target (professional, technician, craftsman), type of activity (office or on-site duties), teaching methodology (theoretical or practical).

For each country of the partnership (France, Germany, Hungary, Italy and Spain), a table is shown in which the qualifications and training courses collected have been summarized, attributing them to one of the target groups described above.

This table includes:

- the code (C) of the qualification,
- the extended name of the qualification (Denomination),
- the target groups addressed in extended form,
- the acronym of the target category (TGA) to which the qualifications are attributed (DP for Design & Planning, BCW for Building Construction Works and finally BMM for Building Maintenance and Management).

As a result of the analysis, another important aspect, called “area of expertise matching” in the document, attributes to each qualification and training scheme. a key set of fields of knowledge and competences among the following areas, as developed in the Prof/Trac project and complementing with its system:

- Energy Management (EM) - Smart grids, BMS, Domotic Systems, etc.
- Energy Production (EP) - Renewables systems, heat pumps, CHP, storage systems and batteries, etc
- Energy Reduction (ER) - Insulation, envelop systems, windows, systems, electric systems, lighting, etc.
- Sustainable Integrated Design (IS) - sustainable architectural design, integrated design, sustainable building materials (embodied energy), environmental indoor

quality, building comfort (thermal, visual, acoustic), usage of certification schemes (i.e. BREEAM, LEED; DGNB, HQE, ITACA Protocol, etc)

- Innovative Digital Solutions (IDS) - Building Information Modelling (BIM), GIS, Lean Management, Intelligent buildings, smart meters, sensors, etc.
- Neighbourhood Solutions (NS) - district heating / cooling, shared renewables, economy of scales,
- Interdisciplinary Skills (IS) - Communication, collaboration, economics, procurement, quality assurance, business models and financing schemes for sustainable design and renovation (e.g. accessing grants and funding).

As already explained in the previous chapter, the categories Innovative Digital Solutions and Neighbourhood Solutions have been added to the PROF/TRAC list of areas of expertise to complete it. Therefore, the final list of fields of competence amount to 44 (the full list is reported in the previous chapter).

These set of areas and the qualification schemes collected, are the key elements used for the comparative analysis described in the following chapter.

The T4S partners collected 106 training or qualification schemes. These qualifications are the result of participating in a professional training courses in the field of sustainable energy of buildings or acquired through work experiences and validated/certified by passing an exam held by authorized bodies.

Below is a summary of the qualifications collected by each partner involved in the project; the information is represented in a table (figure 2-1) and in graphic form (figure 2-2).

Country	Qualification Number
France	29
Germany	13
Hungary	14
Italy	22
Spain	11
Other	17

Figure 2-1 Qualification/training schemes collected in each country (table)

Furthermore, the field "Other" includes the qualifications referred to sustainability assessment systems and protocols recognised and implemented internationally, that

were not considered in phase one of the collecting proceses, but which will play a dedicated rolein the project, in task T2.2 for example.



Figure 2-2 Qualification/training schemes collected in each country (graph)

In order to highlight the differences between the schemes, a further subdivision has been developed, based on the subjects involved in the analysis and the professional categories to which they belong; these target groups (DP, BCW, BMM) have already been explained at the beginning of the paragraph.

The following graph shows the number of qualification and training schemes belonging to each category:

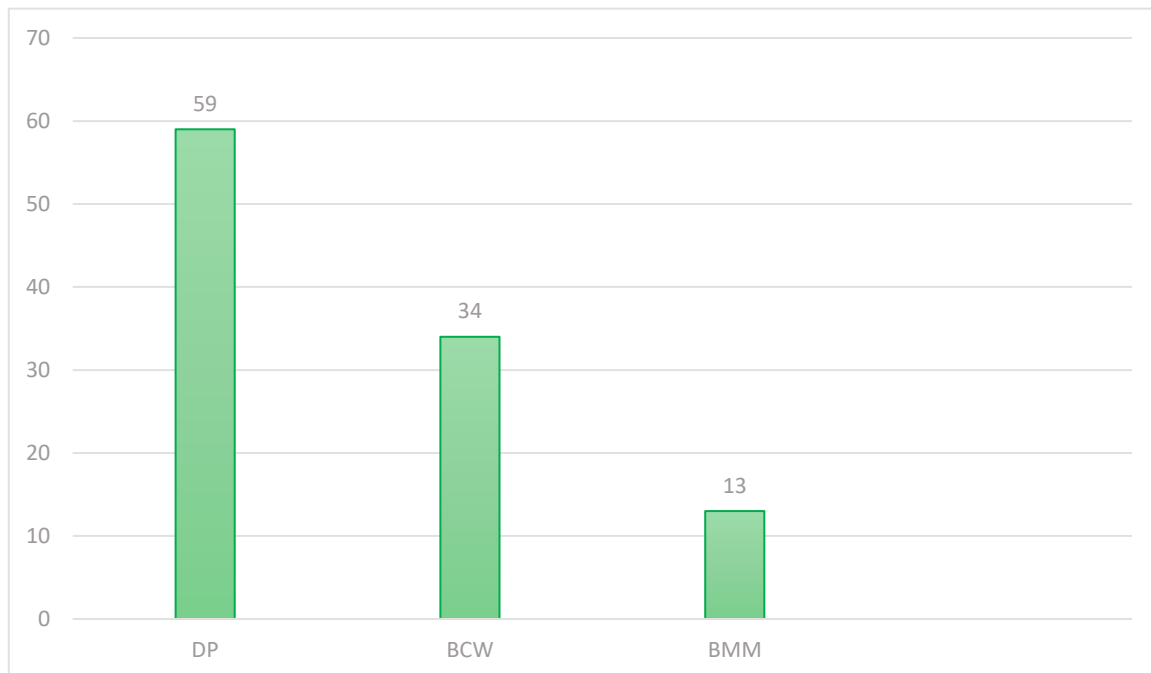


Figure 2-3 Number of qualification schemes collected for each target group

The same qualifications could be attributed to the various professional profiles; for example, technicians working in Design & Planning (DP) and Building Maintenance and Management (BMM) categories can obtain the same qualification of Energy Auditor, although they belong to the different target groups.

2.2 France

In France, 29 qualification and training schemes were collected by Agence Qualité Construction (AQC) and are listed in the table below.

Code	DENOMINATION	TARGET GROUPS ADDRESSED	TGA
F01	Building Energy Performance Team Leader	Job seekers, employees, young apprentices	DP
F02	Sustainable energy and building project manager	Employees in continuous training or retraining; Jobseekers; Apprentices	DP
F03	Specialized Master® Project Management; Construction - Sustainable Construction	Company employees, job seekers, students	DP
F04	Specialized Master® Green buildings;- Green buildings (GBBV)	Young graduates, holders of a Masters degree or equivalent (engineers, architects, town planners, etc.), concerned with gaining cutting-edge expertise in the field of sustainable and responsible construction; construction professionals with the ambition to boost their professional career in a field in very strong evolution; people in professional reorientation having a scientific and technical culture.	DP
F05	Professional title Mason eco-construction	All target groups	BCW
F06	Energy and climate systems maintenance technician	All target groups	BCW
F07	Professional qualification certificate; installer / maintainer in solar thermal and photovoltaic systems	Any public with technical prerequisites and / or professional experience in plumbing / heating and electricity	BCW
F08	Bim in the energy transition of buildings	Design offices; Architects; Anyone interested in BIM technology and wishing to improve the energy and environmental performance of the building	DP
F09	Qualification: Engineering of production facilities using biomass in combustion	Engineers	DP
F10	Maintenance of thermal installations (technicality; current)	Companies in the construction sector holding a QUALIBAT qualification in the activity "Management and maintenance of thermal and air conditioning equipment"	BMM
F11	Energy performance diagnostic	Any professional candidate for certification in the energy field.	DP
F12	External thermal insulation: design and implementation	Project managers: Design and engineering offices, Technical controllers, Architects, Project managers (Property managers, Maintenance and operation managers, Construction and rehabilitation project managers), Manufacturers coatings, Industrials, Building companies, Control offices, Teachers and trainers	BCW

F13	Adapting cities to climate change: anticipating impacts and limiting their magnitude	Project owner public and private, Project manager (Design offices, Architects), Operators, Developers	BMM
F14	Design buildings with high energy performance; according to the principles of the circular economy under renovation	Public and private project owners - Architects - Engineering and design offices - Project management assistant - Programmers - Construction economists	BMM
F15	The art of adobe	Architects, engineers, researchers, artisans, artists, designers	DP
F16	Dynamoe	Architects / Project management; Company design office manager	BMM
F17	Audit Reno	Craftsman / Site personnel / Journeyman; Team leader / Site supervisory staff; Works manager	BCW
F18	Collective solar installation for the production of domestic hot water	Craftsman / Site personnel / Journeyman; Responsible business; Team leader / Site supervisory staff; Works manager; Company Technical Manager / Referent	BCW
F19	Heat pumps in individual housing	Craftsman / Site personnel / Journeyman; Responsible business; Team leader / Site supervisory staff; Works manager; Company Technical Manager / Referent	BCW
F20	Photovoltaic generator connected to the competence network Integration in the building	Craftsmen, employees and entrepreneurs of; roofing, waterproofing, zinc plating, framework	BCW
F21	commissioning agent	Technicians, design office engineers, HVAC companies, contracting authorities	BMM
F22	Energy optimization of tertiary sites in operation	Operations managers. Technicians from climate engineering companies	BMM
F23	Efficient renovation - the keys to energy rehabilitation	Target audience in particular: building professionals, artisans and site professionals; ; And also stakeholders in project management and consulting professions; trainers and teachers and their learners; project owners (professionals or individuals) as well as self-renovators; the prescribers of the real estate trades: real estate agents, trustees and financiers; sales and commerce: commercial technicians and sellers of building products and solutions.	BMM
F24	Technician installing energy and climate systems	Workers/professionals who want a career in sanitary, thermal and air conditioning installation companies for individual, collective housing, tertiary premises, industrial premises	BCW
F25	Professional certificate Plaster and insulation trades	Person targeting the Building trades: Plasterer-plasterer, assembler-plasterer in fittings	BCW
F26	Photovoltaic generator connected to the network	Craftsmen, employees and entrepreneurs of electrical installation works	BCW
F27	Combined Solar System	Professionals in the installation of sanitary and thermal equipment	BCW
F28	Design, sizing and maintenance of solar photovoltaic systems in isolated sites	Design offices, project managers and technical referents of electrical installation works companies; Project managers,	BCW

		project owners; Association working in electrification in weakly electrified countries	
F29	Building life cycle analysis according to the E + C- standard	Design offices; Architects; Building owners.	DP

Figure 2-4 List of qualification/training schemes collected in France

The distribution of qualification and training schemes among the target groups is fairly uniform: 38% is referred to the Design and Planning category, 33% to Building Construction Works and the remaining 29% belongs to Building Maintenance and Management, as shown in Figure 2-5.

The analysis shows that a significant number of qualifications are specifically aimed at graduated technicians, such as schemes with code F04, F08, F09, F11, F12, F13, F14, F15, F16, F2.

A second equally large group of qualifications involves Craftsmen such as the F10, F17, F18, F19, F20, F23, F24, F25 and F26.

Finally, there are the schemes specifically addressed to Operations managers such as F10, F12, F13, F14, F22 and F23.

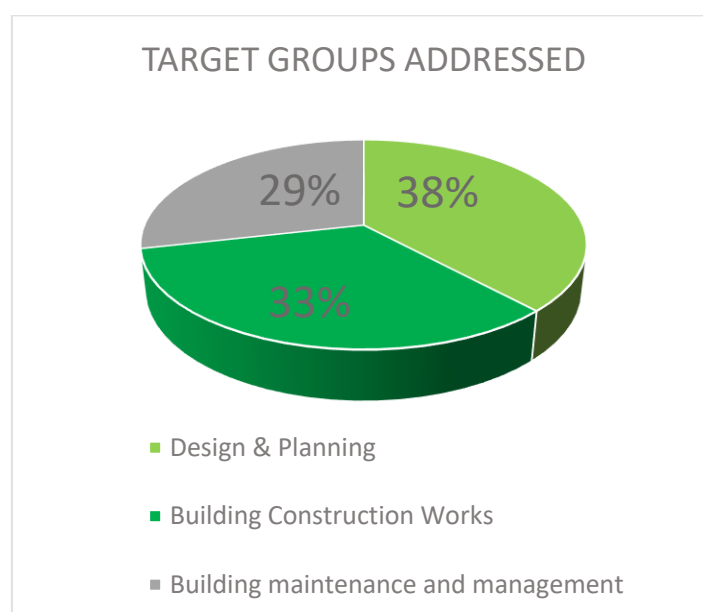


Figure 2-5 Distribution of French schemes within the target groups

Concerning the teaching methodology, the theoretical methodology prevails with classroom- taught lessons (78%), as shown in Figure 2-6, while the remaining lessons are (22%) dedicated to practical activities.

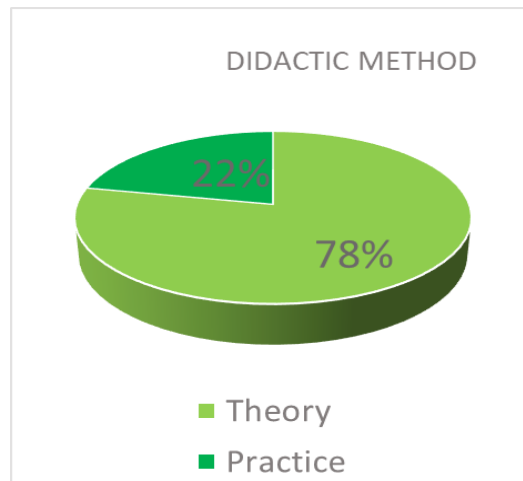


Figure 2-6 Distribution of teaching methodologies for acquisition of qualification scheme in France

For almost all the qualifications, no reference legislation was indicated; only the qualifications F01, F10 and F16 have a legislative reference.

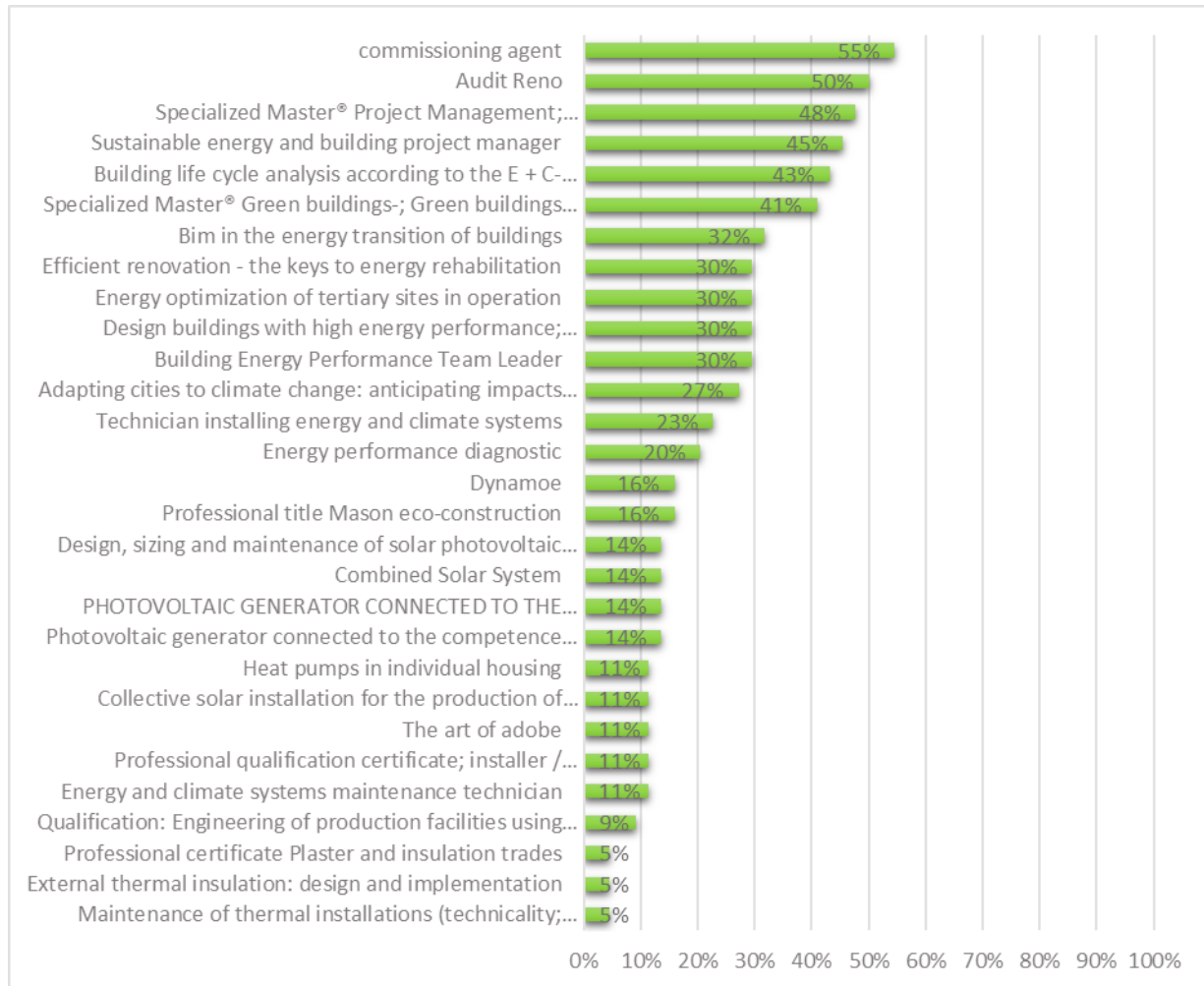
In the analysis we can note that a qualification register exists only for F01 and F02, while for all the others qualifications, no reference registers have been indicated.

The qualifications and training schemes collected provide an overall consistent number of ULOs: they range from a minimum of 2 up to a maximum of 14 ULOs; the average value of ULOs provided by all qualifications and training schemes is 6.

Areas of expertise matching

The areas of expertise of each qualification and training scheme collected in France by AQC are carefully analyzed and compared to the areas described in the PROF/TRAC Project, integrated with the two additional categories provided by the T4S project (as result achieved in EU Level Project). The 44 areas of expertise represent the framework used as a reference for the analysis described in the following paragraphs of the document.

The result of the comparison of the field of expertise described in the French qualifications and training courses with the already mentioned framework, is shown in the figure below.



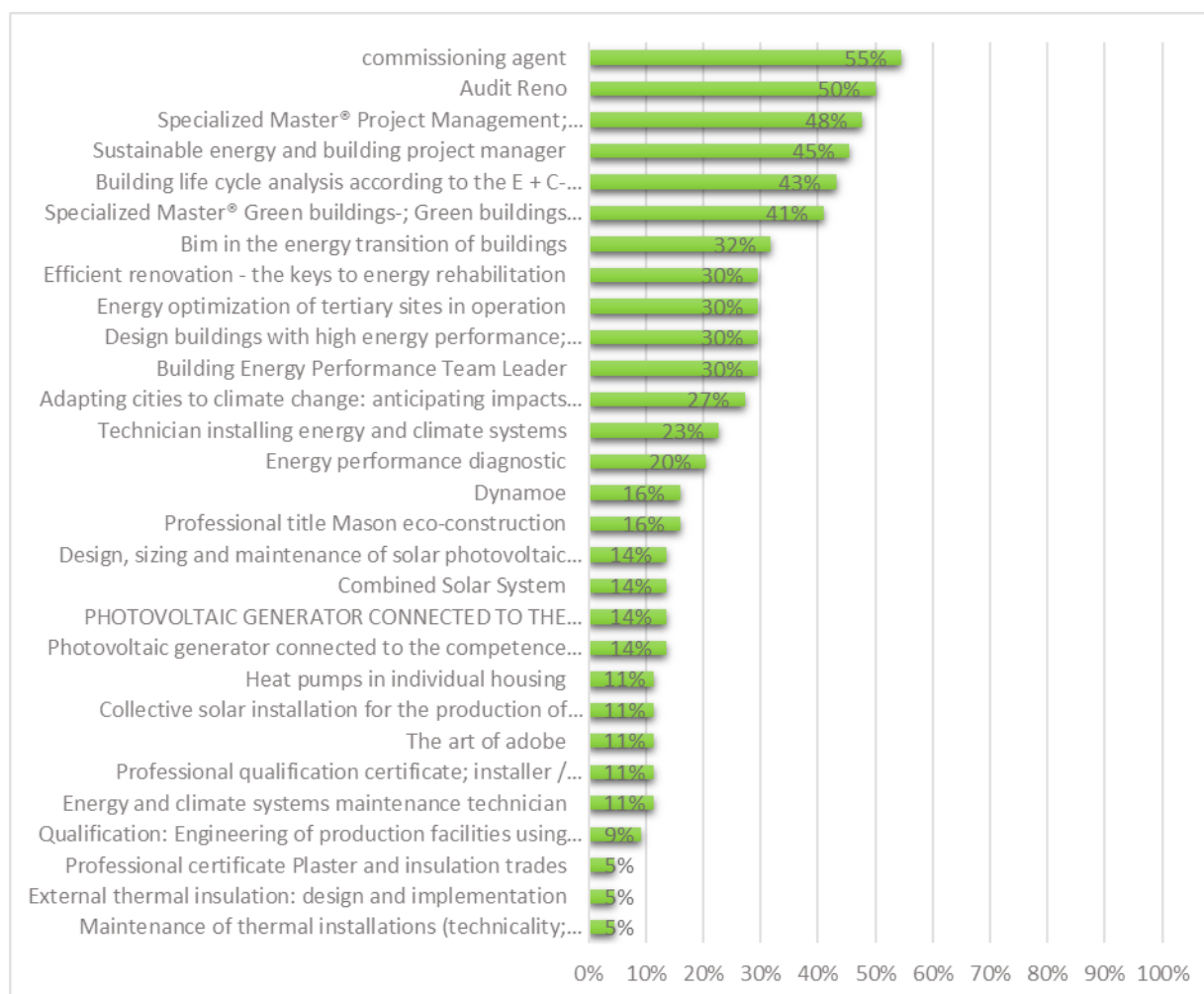


Figure 2-7 Percentage of areas of expertise (on the total of 44) included in each French qualification scheme

For example, to qualification "Commissioning Agent", which has 24 skills of the 44 considered, a percentage score of 55% has been assigned.

The analysis shows that 4 qualifications have less than 10% of the competences of the framework taken as a reference, 19 qualifications have a number of competences between 10% and 40% and the remaining qualifications have a number of competences between 40% and 55% on the total.

In order to assess the distribution of competencies across all qualifications and training schemes, the analysis shown in the following figure was carried out.

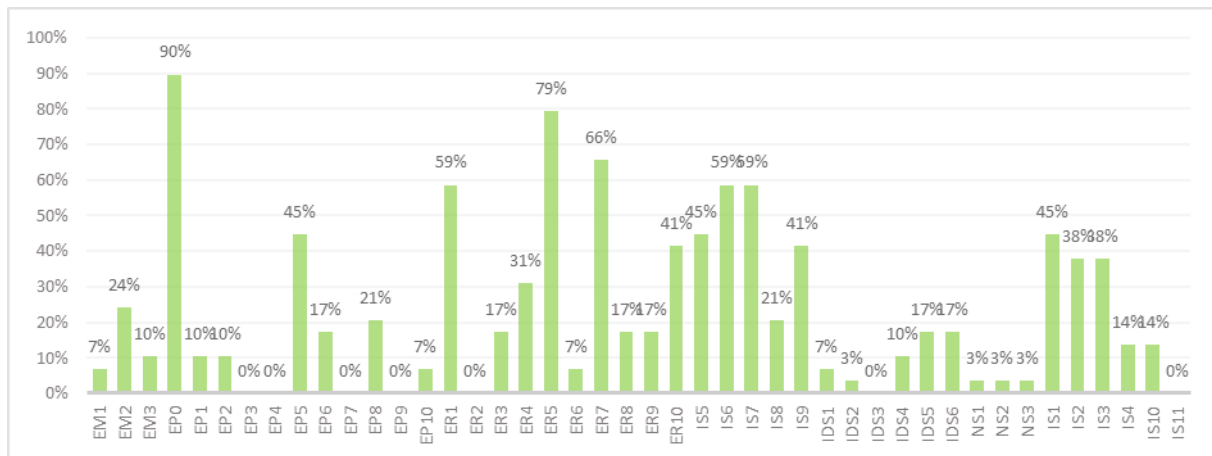


Figure 2-8 Rate of availability of each area of expertise in all the qualification schemes collected in France

Figure 2-8 highlights how the EP0 - General heating and cooling (90%) competence is the most present in French qualifications and training schemes, together with ER5 - Hot water systems (79%) and ER7 - Heating and cooling (66%) for collected qualifications.

On the other hand, all the competences belonging to the Neighborhood Solutions and Innovative Digital Solutions categories are present in fewer numbers than those described in the previous paragraph.

Other field of expertise, instead, are not included in these qualifications, such as, EP3 - Biogas energy production, EP4 - District heating and cooling, EP7 - Solar absorption cooling, EP9 - Mini wind generation.

2.3 Germany

The partner Dr. Jakob energy research GmbH & Co.KG (JER) conducted a survey on the German territory, collecting 13 qualifications and training schemes, as described in the table below.

Code	DENOMINATION	TARGET GROUPS ADDRESSED	TGA
G01	Energy consulting in middle class	Students, engineers, educated energy professionals (craftsman)	DP
G02	Building energy consultant (craftsman)	Master plasterer, master carpenter, Master roofer, Master Chimney Sweep, Master Mason	BCW
G03	Energy auditor	Design & planning (architects, civil engineers, sustainability consultants etc)	DP
G04	Energiemanagement im Facility Management	Management personnel building services, technical managers, service and energy supply companies, specialist building services personnel in the strategic and operational area of building management	BMM
G05	Energy consultant	Architects, engineers, master craftsmen and technicians	DP
G06	Energy consultant - Module 1	Energy consultant	DP
G07	Energy consultant - Module 2	Energy consultant	DP
G08	Energy consultants for historical buildings	Architects, engineers (civil engineers, technical building equipment engineers), building physicists with experience or further training in monument preservation	DP
G09	Energy Efficiency Consultant SMEs	Experienced energy consultants, engineers with a focus on energy technology or from the fields of engineering or natural sciences	DP
G10	Energy Saving Ordinance	Energy management officers and managers, owners of non-residential buildings and persons from manufacturing industries	BMM
G11	Advanced course: Energy evaluation of non-residential buildings DIN V 18599	Energy consultants, architects, planners and engineers	DP
G12	Storage technologies for renewable energies	manufacturers of wind turbines, public specialist administrations, politicians, electrical installers, specialist planners from the specialist areas, engineers (as an overview and introduction), clerks, finance and banking specialists, accountants, business people and sales specialists (office and field service).	DP
G13	Municipal energy and climate protection management	municipal employees	DP

Figure 2-9 List of qualification/training schemes collected in Germany

The target group addressed presents the following distribution: 67% of qualification schemes collected belong to Design and Planning, 13% to Building Construction Works

and the remaining 20% to Building Maintenance and Management category, as shown in figure 2-10.

More in detail, the analysis highlights that there are qualification and training schemes that are specifically aimed at professionals, such as G01, G03, G05, G06, G07, G08, while only G02 is aimed at craftsmen. It should also be noted that G01 can be aimed at both Design and Planning and Construction works, while G13 could instead concern both Design and Planning and Operations Managers.

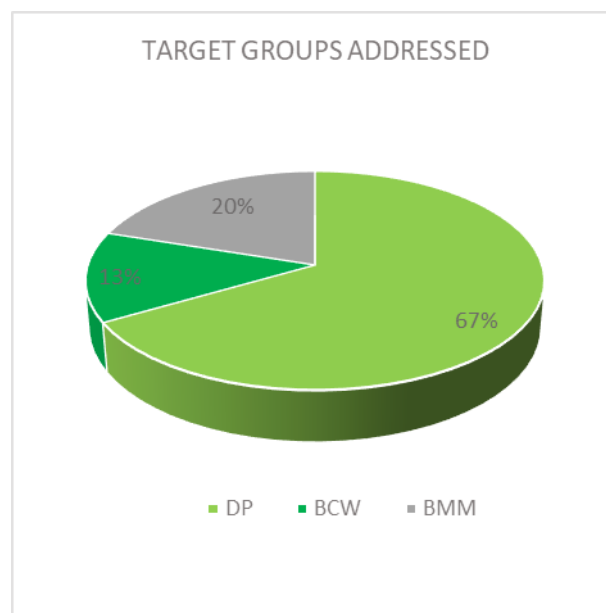


Figure 2-10 Distribution of German schemes within the target groups

The didactic method indicated by the German partner for all qualifications and training schemes detected in their country, includes only theoretical frontal lessons, as shown in the figure below.

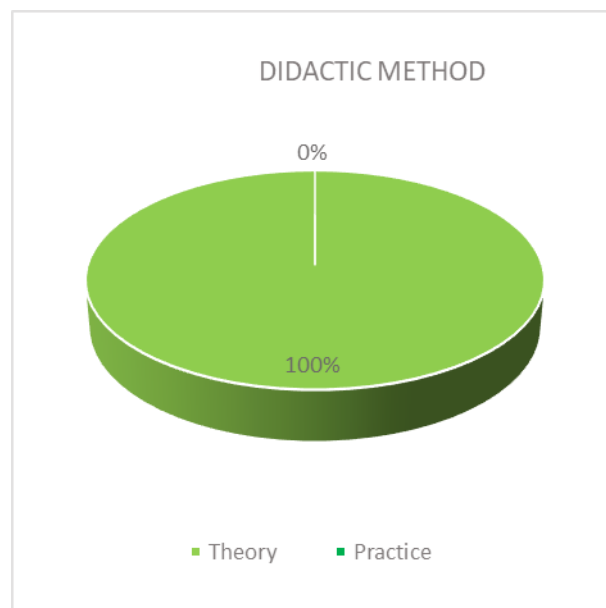


Figure 2-11 Distribution of teaching methodologies for acquisition of qualification scheme in Germany

As for the normative references, it was indicated only for 3 qualifications (G01, G02 and G03).

Instead, for almost all of the qualification schemes collected (11 out of 13) an official qualification register exists.

All qualifications considered include a significant number of ULOs: from a minimum of 1 ULO (G07, G08, G10, G11 AND G12) to a maximum of 12 (G13); the average value of ULOs through which the qualifications are divided is 4 ULOs.

Areas of expertise matching

The areas of expertise of each qualification and training scheme collected in Germany by JER have been carefully analyzed and compared with the 44 areas of our framework deriving from the PROF/TRAC and EU Level projects.

Figure 2-12 shows the percentages of the total number of areas of expertise, in descending order, attributed to each qualification. For example, qualification G13 - Municipal energy and climate protection management includes 38 areas of the 44 contained in our framework, corresponding to a percentage of 86%. Furthermore, the analysis shows that 3 qualifications have areas of expertise below the percentage of 10%, 6 qualifications are between 10% and 30% and the remaining 4 qualifications between 30% and 86%.

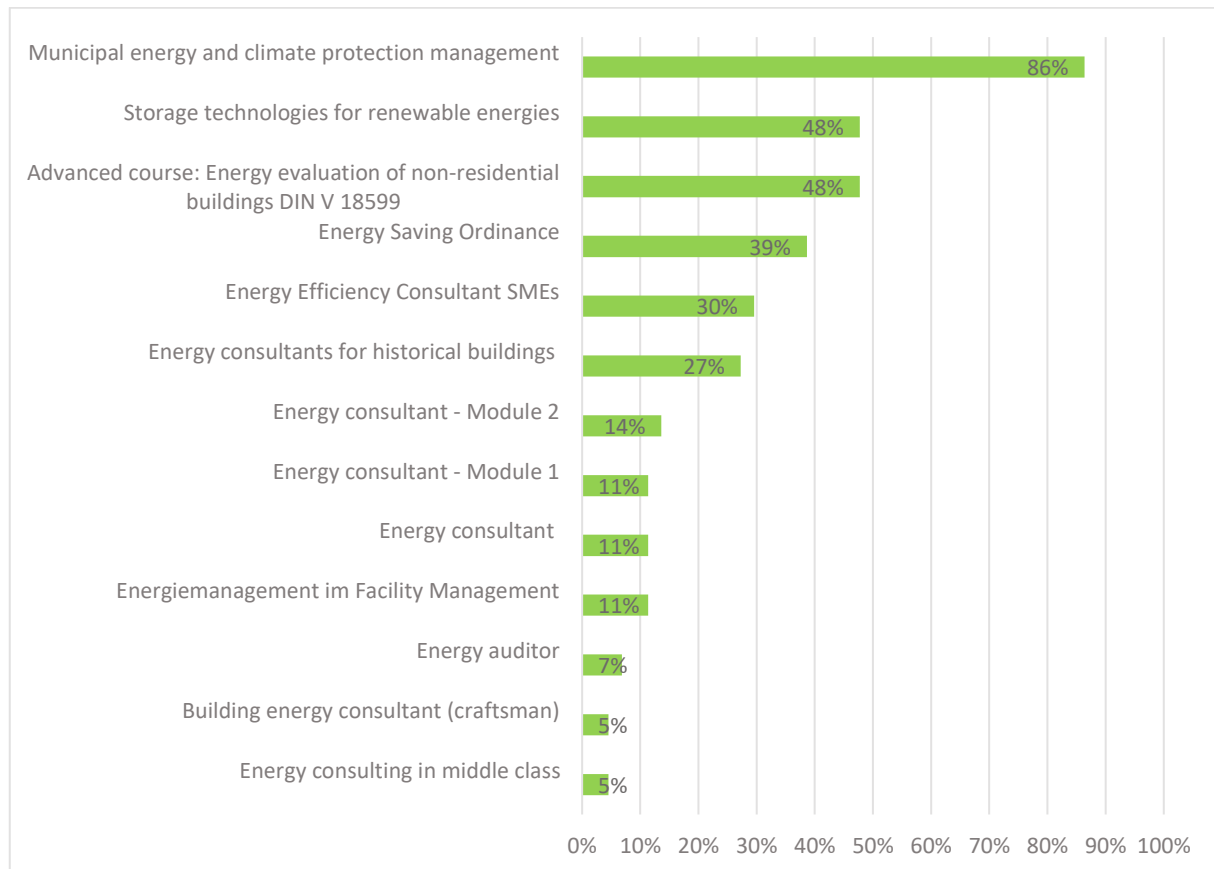


Figure 2-12 Percentage of areas of expertise (on the total of 44) included in each qualification scheme collected in Germany

In order to assess the distribution of competences across all qualifications and training schemes, the analysis shown in the following figure was carried out.

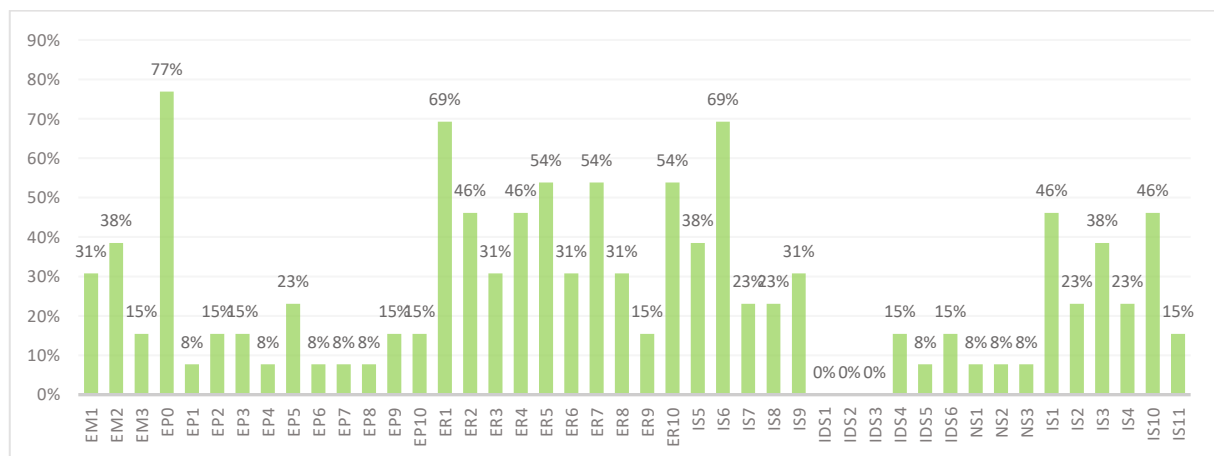


Figure 2-13 Rate of availability of each area of expertise in all the qualification schemes collected in Germany

Table 2-13 highlights how the area EP0 - Heating and cooling GENERAL (77%) is the most frequently mentioned in the qualification schemes considered, followed by other areas with a high percentage, such as: ER1 - Insulation and IS6 - Integrated design (69%); ER5

- Hot water systems, ER7 - Heating and cooling emission systems; ER10 - Ventilation systems (54%).

Other areas of expertise are less frequently present in the qualification schemes, such as EP1 - Geothermal energy systems, EP6 - Solar power systems for electricity generation, EP7 - Solar absorption cooling and EP8 - Solar thermal energy systems for domestic hot water and / or heating generation.

Finally, IDS1 - Communication, IDS2 - Information management and IDS3 - Collaboration are not present in the schemes collected in Germany.

2.4 Hungary

The partner GEONARDO has collected 14 qualifications and training schemes in Hungary and the list is presented in the following table.

Code	DENOMINATION	TARGET GROUPS ADDRESSED	TGA
H01	Building engineer technician		DP
H02	Building energy assessor	graduate architect; graduate settlement engineer; Certified architect; degree in transport engineering; mechanical engineer; degree in electrical engineering; degree in energy engineering; architect; township engineer; architect; traffic engineer; hydraulic engineer; traffic engineer; Mechanical engineer; electric engineer; energetics engineer	DP
H03	Construction technician	-	DP
H04	Environmental technician	-	DP
H05	Mason	-	BCW
H06	Stove mechanic	-	BCW
H07	Gas and heat generation equipment installer	mechanics; gas network installers; heating systems experts	BCW
H08	Plumbing and plumbing equipment installation expert	Energy recovery equipment installer; Gas appliance and pipe fitter; Central heating and plumbing fitter; Plumber;	BCW
H09	Stove technician	-	BCW
H10	Refrigeration, air conditioning and heat pump equipment installer	Duct fitter; Plumbing network mechanic; HVAC system installer;	BCW
H11	Refrigeration, air conditioning technician	Duct fitter; Plumbing network mechanic; HVAC system installer;	BCW
H12	Operator of renewable energy generating equipment	engineers; electrician;	BCW
H13	Roofing expert	-	BCW
H14	Training of installer and maintainer of low-power solar power plants	engineers; electrician; solar power experts	BCW

Figure 2-14 List of qualification/training schemes collected in Hungary

The target group addressed shows the following distribution: 63% of qualifications are attributed to the Design and Planning category, and 38% to Building Construction Works, as shown in figure 2-15.

In particular, the analysis highlights that there are qualifications aimed exclusively at graduate technicians, such as qualifications with code, H01, H02, H03, H04, while all the others are aimed at Construction workers. Some of these qualifications are then addressed to both DP and BMM such as the H03, while the H14 could be addressed not only to DP, but also to BCW.

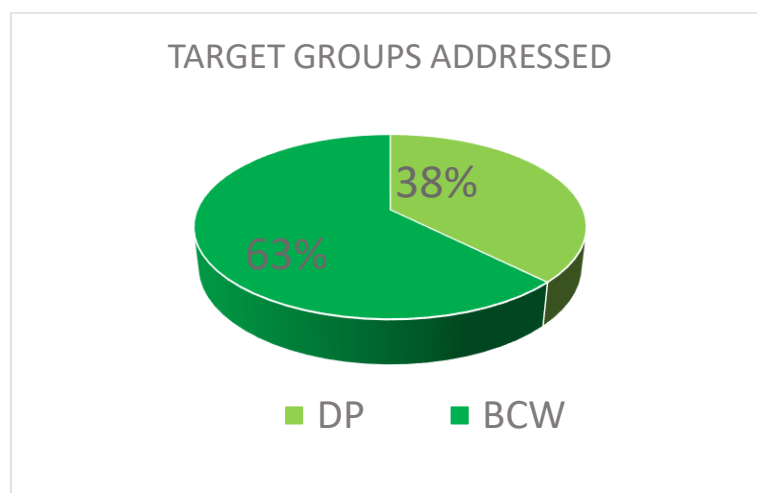


Figure 2-15 Distribution of Hungarian schemes within the target groups

The Didactic Method is equally divided between lectures in the classroom with 51% and practical activity (49%), as shown in the following graph.

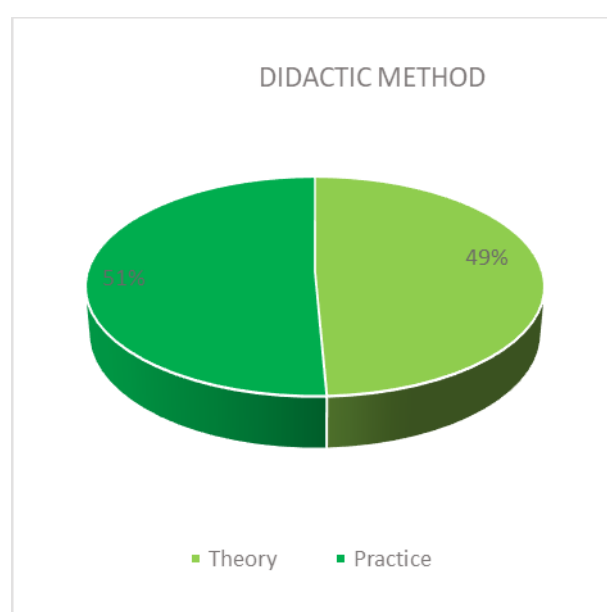


Figure 2-16 Distribution of teaching methodologies for acquisition of qualification scheme in Hungary

For almost all the qualifications, a reference legislation has been indicated: only the qualifications H04, H09, H12 and H14 do not have a legislative reference, or is not publically available (discoverable). Furthermore, for half of the schemes considered (H01, H02, H03, H05, H06, H12 and H14) there is a qualification register, while for the remaining half no references have been indicated.

All the collected qualifications are divided into ULOs: they range from a minimum of 1 ULO (H02) to a maximum of 10 (H08); the average value of ULOs provided by all qualifications is 4.

Areas of expertise matching

Below is an analysis carried out on all Hungarian qualification and training schemes, in relation to the 44 areas of expertise of the framework of reference.

Figure 2-17 shows the percentages of the total number of field of expertise, in descending order, which can be detected in all the qualification schemes. For example, qualification H14 (Environmental Technician) covers 19 areas (out of the 44 of the reference framework), corresponding to the percentage of 43%. The analysis shows that there are 7 qualifications which include less than 10% of the expertises of the considered framework, 5 qualifications have a number of areas of expertise between 10% and 30% and only 2 qualifications between 30% and 43% .

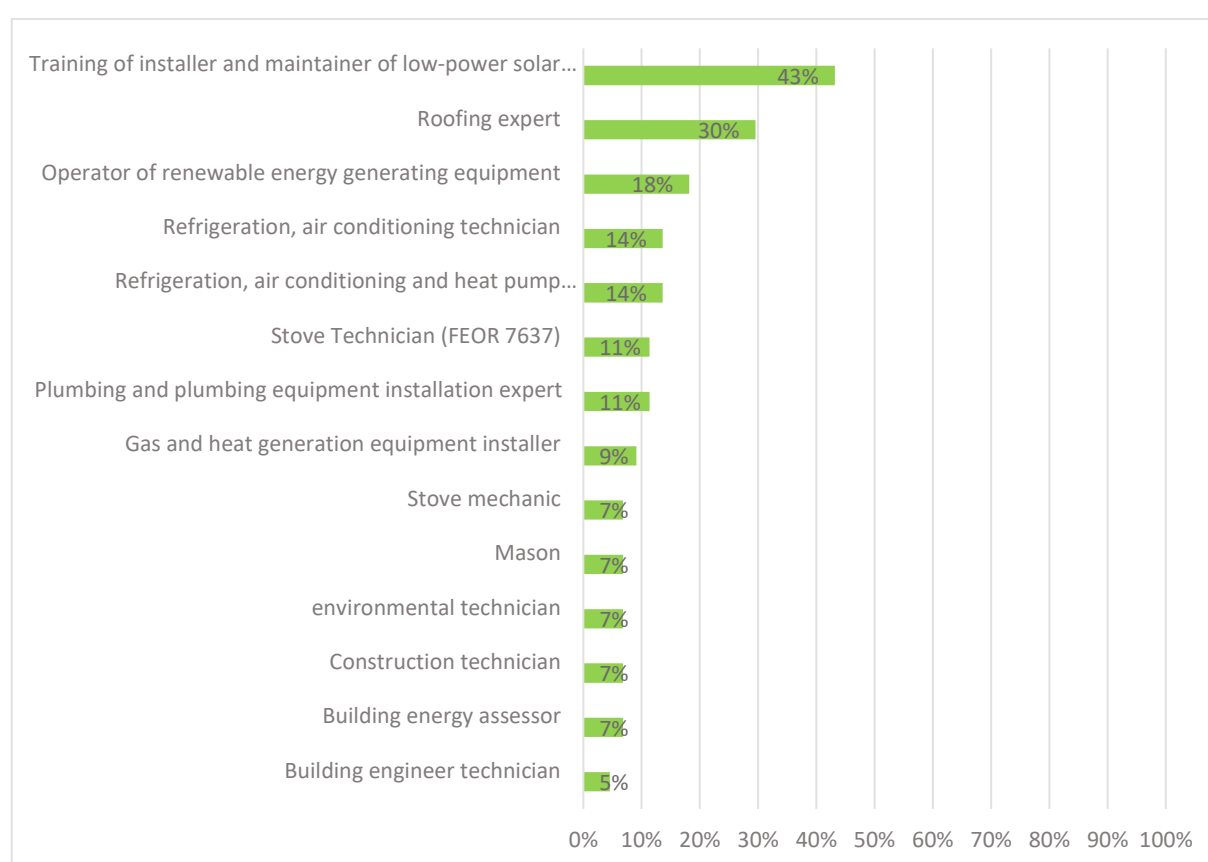


Figure 2-17 Percentage of areas of expertise (on the total of 44) included in each qualification scheme collected in Hungary

In order to assess the distribution of skills across all qualifications, the analysis depicted in table 2-18 was carried out.

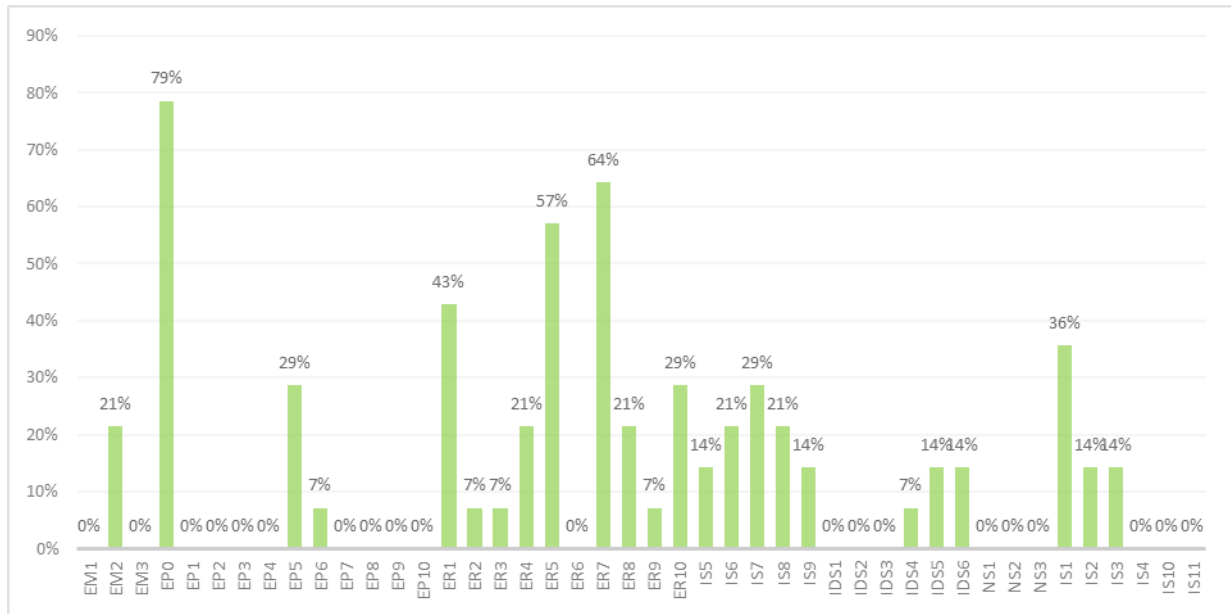


Figure 2-18 Rate of availability of each area of expertise in all the qualification schemes collected in Hungary

The above diagram highlights how the expertise EP0 - Heating and cooling GENERAL (78%) is the most frequent among all the qualifications, followed by the areas of expertise ER5 - Hot water systems (57%) and ER7 - Heating and cooling emission systems (64%).

There are some fields that are less present, such as ER2 - Air tightness building, ER3 - Micro climates, ER8 - Electric heating systems.

Some field of expertise, on the other hand, are completely absent.

2.5 Italy

In Italy, iiSBE Italia R&D srl. (IISBE), the Architect Order of Bologna (ArchiBo) and the Institute for the Professional Instruction of construction workers of Bologna (IIPLE) collected 22 qualifications and training schemes, listed below:

Code	DENOMINATION	TARGET GROUPS ADDRESSED	TGA
I01	Protocollo ITACA Expert	Designers (architects and engineers)	DP
I02	LEED Green Associate Agent	Industry professionals seeking to increase their knowledge of sustainable construction strategies, benefits, and resources of the LEED-NC® Rating System for New Construction: Architects; Engineers; Designers; Promoters; Consultants; Contractors; Owners; Manufacturers.	DP
I03	LEED Accredited Professional (AP) Agent	Industry professionals seeking to increase their knowledge of sustainable construction strategies, benefits, and resources of the LEED-NC® Rating System for New Construction: Architects; Engineers; Designers; Promoters; Consultants; Contractors; Owners; Manufacturers.	DP
I04	Commissioning agent	Technicians, design office engineers, HVAC companies, contracting authorities	BMM
I05	Expert in Energy Management (EGE)	Design & planning (architects, civil engineers, sustainability consultants etc)	BMM
I06	Energy auditor	Design & planning (architects, civil engineers, sustainability consultants etc)	DP
I07	Environmental impact assessment expert (VIA)	Design & planning (architects, civil engineers, sustainability consultants etc)	DP
I08	Building energy assessor	Design & planning (architects, civil engineers, sustainability consultants etc)	DP
I09	Casaclima Agent	architects, engineers, surveyors, thermotechnics	DP
I10	Comuneclima Consultant	Designers (architects and engineers) and all the technicians with proven experience in municipalities consulting on energy efficiency themes, renewable energy and sustainable mobility.	DP
I11	Monitoring energy consumption expert	Technicians, design office engineers, HVAC companies, contracting authorities	DP
I12	Energy solutions system building plant expert	Technicians, design office engineers, HVAC companies, contracting authorities	DP
I13	Expert in Minimum Environmental Criteria	Designers (architects and engineers)	DP
I14	Sustainable building Expert	The Sustainable Building Expert certification is aimed at all those professionals (engineers, architects, surveyors and experts) who apply, in their work contest, Protocollo ITACA and CasaClima assessment systems.	DP
I15	GBC HB AP (Historic Buildings)	Designers (architects and engineers)	DP

I16	GBC Home AP	Designers (architects and engineers)	DP
I17	Building constructor expert	Craftsman	BCW
I18	Wooden Carpenter expert	Craftsman	BCW
I19	Electrician expert	Craftsman	BCW
I20	Window manufacturer expert	Craftsman	BCW
I21	Plumbing and heating specialist	Craftsman	BCW
I22	Expert Craftsman Casaclima	Craftsman	BCW

Figure 2-19 List of qualification/training schemes collected in Italy

The qualification and training schemes collected can be divided among Design & Planning (64%), Building Construction Works (25%) and Building maintenance and Management (12%), as shown in figure 2-20.

In particular, it should be noted that there are qualifications and training schemes aimed specifically at graduated technicians, such as the qualifications with code, I01, I09, I10, I13, I15 and I16 and others aimed at BCW such as I17, I18, I19, I20, I21 E I22. Some of these qualifications are then addressed to both DP and BMM such as I04 and I05.

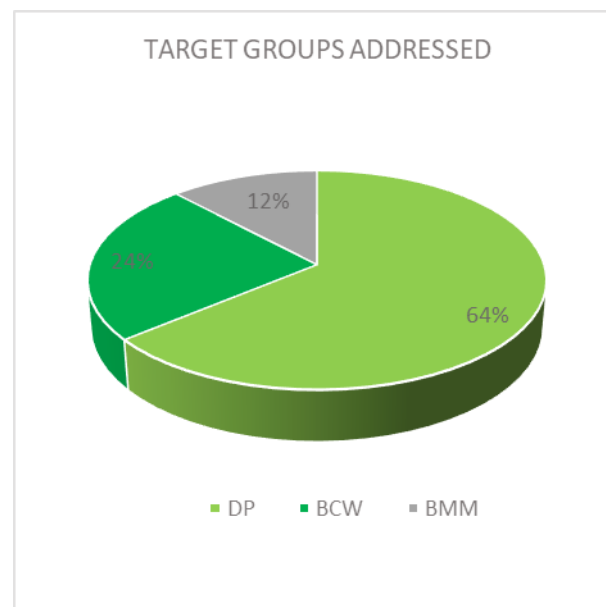


Figure 2-20 Distribution of Italian schemes within the target groups

The dominant didactic method, with a percentage corresponding to 96%, is the theoretical teaching method, while the remaining 4% is dedicated to practical activity, as shown in the figure below.

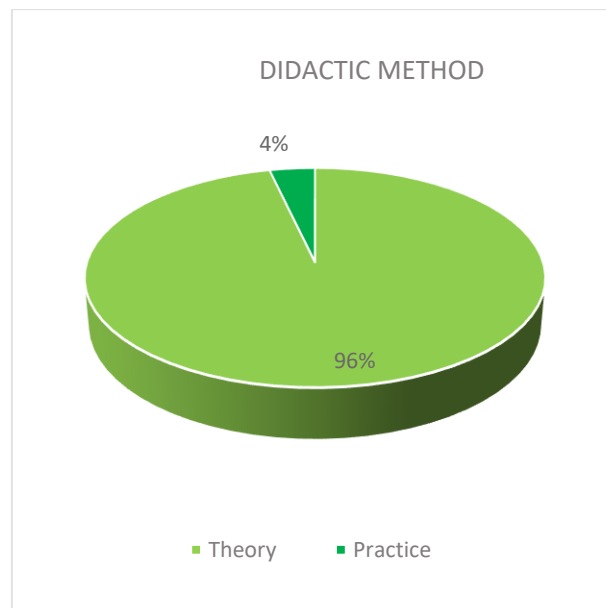


Figure 2-21 Distribution of teaching methodologies for acquisition of qualification scheme in Italy

For 13 qualifications of the 22 collected in Italy, reference legislation was indicated. Moreover, an official qualification register exists for 16 qualifications.

All the collected qualifications are divided into ULOs, from a minimum of 1 to a maximum of 10 (I01); the average value of ULOs provided by all qualifications is 3.

Areas of expertise matching

The following section deals with the analysis carried out on all the Italian qualifications in relation to the areas of expertise indicated in the framework produced by PROF/TRAC and EU Level projects, consisting of 44 areas of expertise.

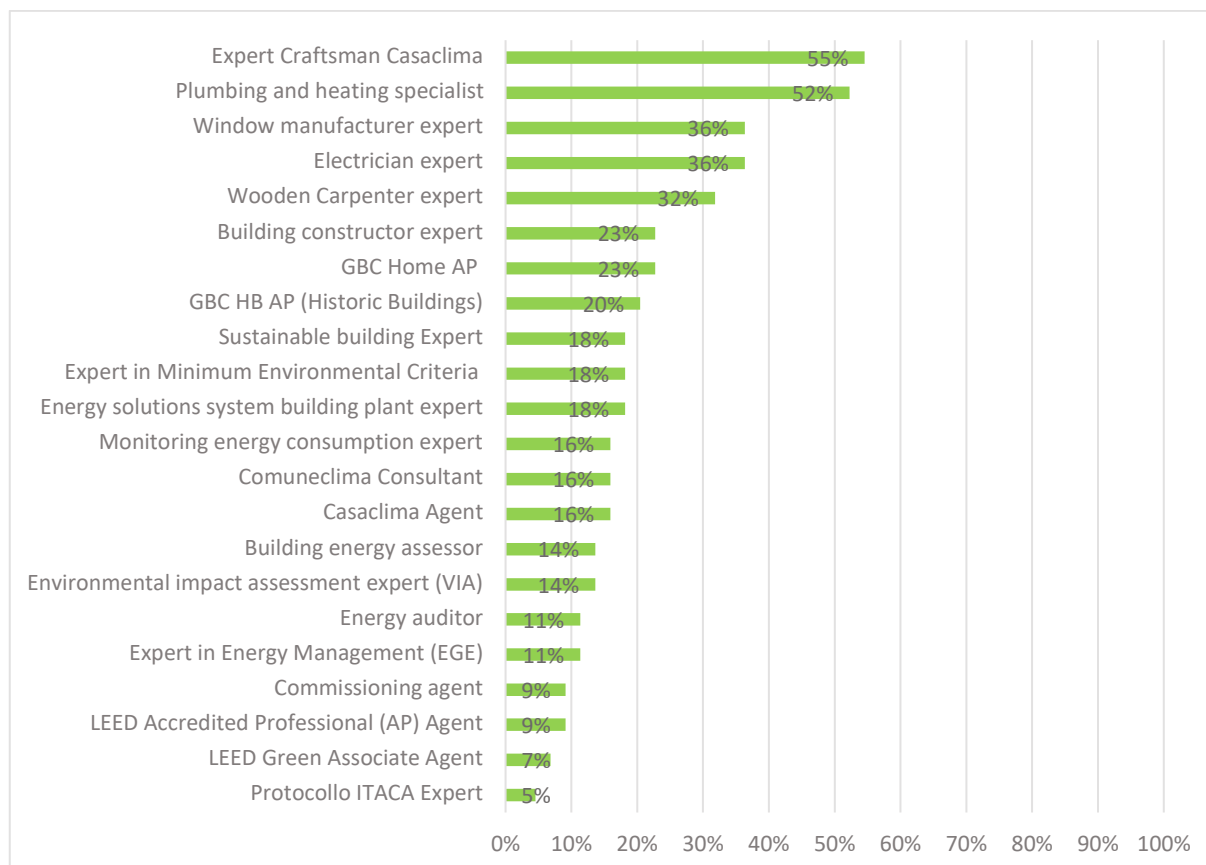


Figure 2-22 Percentage of areas of expertise (on the total of 44) included in each qualification scheme collected in Italy

Figure 2-22 shows the percentages of the total number of fields of expertise, in descending order, assigned to each specific qualification scheme. For example, qualification I04 - Commissioning agent covers 24 areas, corresponding to a percentage of 55% on the total amount. Furthermore, the analysis shows that there are 4 qualifications and training schemes with a percentage of represented areas below 10%, 13 qualifications between 10% and 30% and the remaining 5 between 30% and 55% .

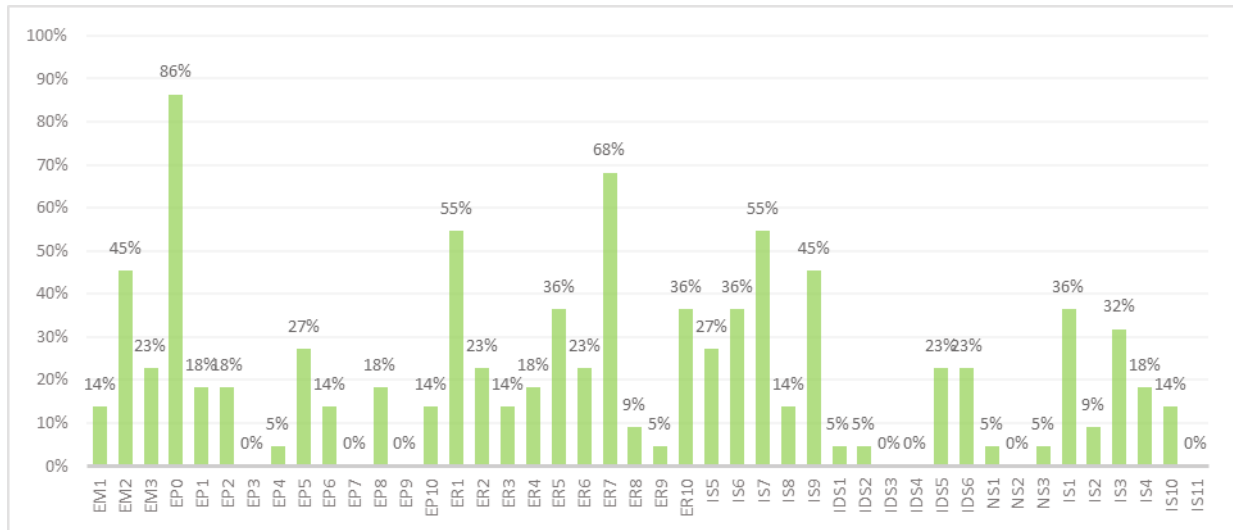


Figure 2-23 Rate of availability of each area of expertise in all the qualification schemes collected in Italy

The analysis highlights how the field EP0 - Heating and cooling GENERAL (86%) is the most present among all the Italian qualifications and training schemes. The following areas of expertise are represented by lower percentages: ER7 - Heating and cooling emission systems (68%), ER5 - Hot water systems (55%) and IS7 - Sustainable building materials (55%).

Other fields have a low score while others are not even mentioned, such as EP3 - Biogas energy production, EP7 - Solar absorption cooling, EP9 - Mini wind power generation, IDS3 - Collaboration, IDS4 - Quality assurance, NS2 - Shared renewables and IS11 - Procurement.

2.6 Spain

For Spain, the Partner Departament de Territori i Sostenibilitat – Generalitat de Catalunya (DTES) has collected 11 qualification and training schemes listed below.

Code	DENOMINATION	TARGET GROUPS ADDRESSED	TGA
S01	ENA190_2 - Installation and Maintenance of solar thermal installations	Potential applicants to: Solar thermal installations assemblers; Maintainers of solar thermal installations; Solar thermal installation operators.	BCW
S02	ENA193_3 - Management of the assembly and maintenance of wind farms	Potential applicants to: Operation and maintenance management technicians in wind installations; Responsible for assembling wind farms; Responsible for assembling wind turbines; Specialists for assembling wind turbines; Specialists in wind farm maintenance.	BCW
S03	ENA261_2 Assembly and Maintenance of Solar Photovoltaic Installations	Potential applicants to: Assemblers of photovoltaic solar installations Operators of photovoltaic solar installations. Maintainers of photovoltaic solar installations.	BCW
S04	ENA263_3 - Organization and projects of photovoltaic solar installations	Potential applicants to: Promoters of solar installations; Designers of photovoltaic solar installations Responsible for assembly of photovoltaic solar installations Responsible for maintenance of photovoltaic solar installations; Responsible for the operation and maintenance of small photovoltaic solar plants	BMM
S05	ENA264_3 - Organization and projects of solar thermal installations	Potential applicants: Promoters of solar installations; Designers of solar thermal installations; Responsible for assembly of solar thermal installations; Responsible for maintenance of solar thermal installations Technicians of alternative energy systems.	BMM
S06	ENA358_3 Energy efficiency of Buildings	Potential applicants to: Promoter of energy efficiency programs. ; Building energy certification process assistant.; Energy managers.	DP
S07	ENA620_1 - Basic operations in the assembly and maintenance of renewable energy facilities	Potential applicants to: Installation and maintenance assistant for solar thermal installations; Assistant of assembly and maintenance of photovoltaic solar installations; Installation and maintenance assistant of small wind power installations.	BCW
S08	LEED Green Associate; LEED AP BD +C; LEED AP O +M ; LEED AP ID + C ; LEED AP HOMES ; LEED AP ND	Industry professionals seeking to increase their knowledge of sustainable construction strategies, benefits, and resources of the LEED-NC® Rating System for New Construction; Architects; Engineers; Designers; Promoters; Consultants; Contractors; Owners; Manufacturers	DP

S09	Accredited evaluators, EA VERDE	Institutions; Academic institutions; Public institutions, government authorities; Research centres; Professional associations; Business associations; Other entities; Professionals, experts, specialists; Professional societies; Individual professions; Enterprises and companies; Manufacturing and supplier companies; Consulting and engineering companies; Promoters and executing companies; Supply and management companies; Supportive companies	DP
S10	BRE-accredited assessors;	Institutions; Academic institutions; Public institutions, government authorities; Property agents, to promote the credentials and environmental benefits of a building to potential buyers and tenants; Planning project designers use it as a tool to improve the functioning of their buildings and to expand their knowledge and experiences in all aspects of environmental sustainability; Enterprises and companies use it to reduce operating expenses, measure and improve the performance of buildings, develop action plans and follow-up execution reports of single buildings or of its real estate assets.	DP
S11	WELL AP (Accredited Professional)	Focus on different profiles of professionals, since the contents are transversal and interdisciplinary; Architecture and engineering studies; Developers and Builders; Real Estate Investors; Public administrations; Real estate consultants and appraisers; Wealth Managers and Facility Managers; CSR teachers and professionals; Independent professionals; Students; HR staff or people management	DP

Figure 2-24 List of qualification/training schemes collected in Spain

As shown in figure 2-25, 44% of the qualification schemes considered belongs to Design and Planning group, 25% to Building Construction Works and the remaining 31% to Building Maintenance and Management category.

In particular, it is important to point out that there are qualifications aimed at professionals, such as the qualifications with code S08, S09, S10, S11, and almost all of the remainings aimed at workers. Some of these qualifications are then addressed to both DP and BMM groups such as S04, S05, S06, while S02 and S03 could be addressed not only to DP but also to BCW.

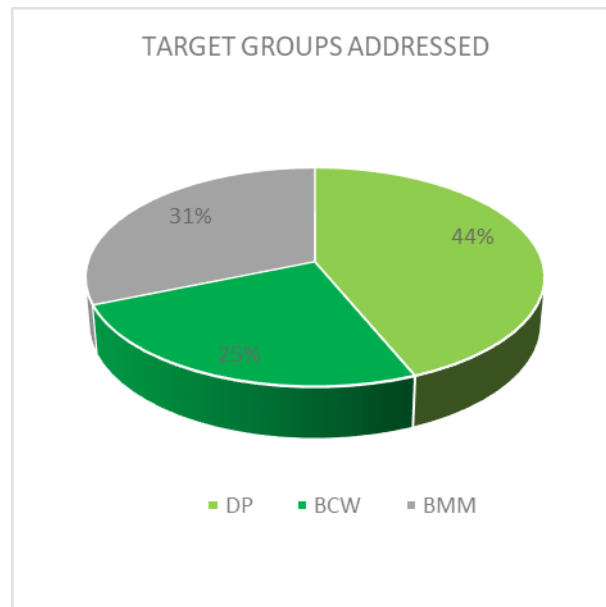


Figure 2-25 Distribution of Spanish schemes within the target groups

The didactic method most frequently adopted is frontal lessons in class (77%), while the remaining 23% is carried out through practical activity, as shown in the figure below.

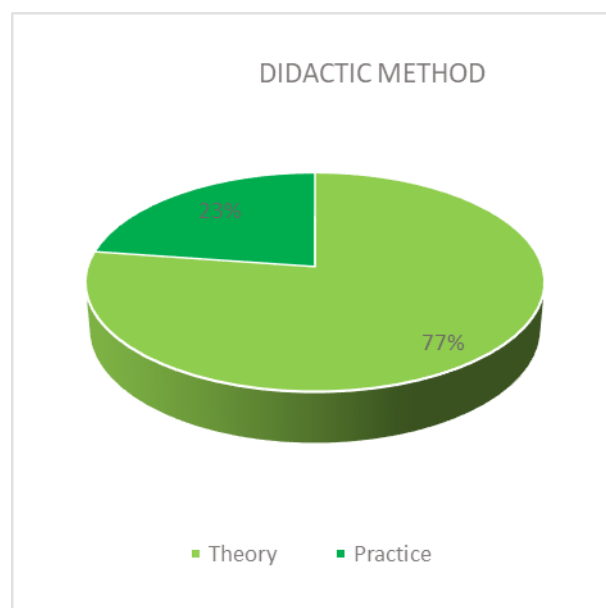


Figure 2-26 Distribution of teaching methodologies for acquisition of qualification scheme in Spain

For all the schemes, with the exception of S08 and S11, reference legislations have been indicated. Instead, only for 3 qualifications (S08, S09 and S10) there is an official qualification register.

All the collected qualifications are divided into ULOs, from a minimum of 2 (S11) to a maximum of 8 (S01); the average value of ULOs provided by all qualifications is 4.

Areas of expertise matching

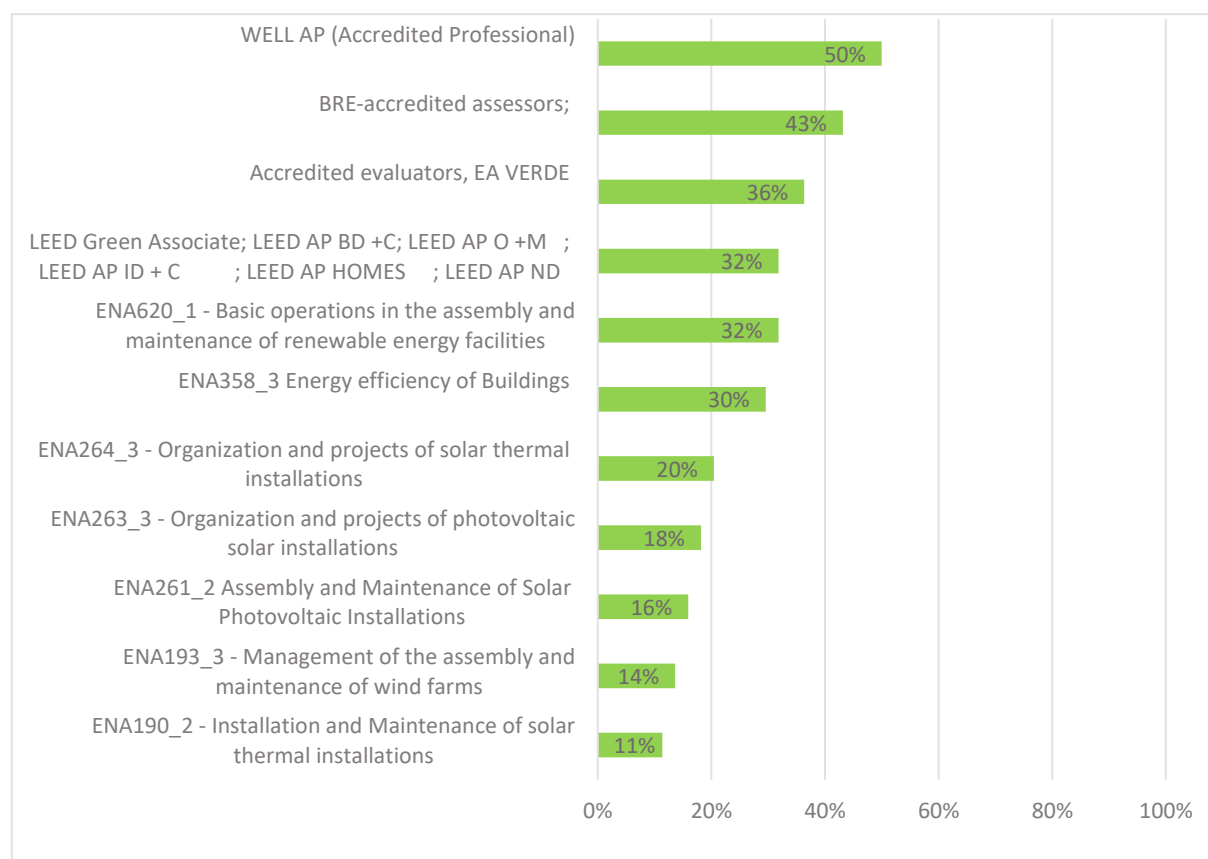


Figure 2-27 Percentage of areas of expertise (on the total of 44) included in each qualification scheme collected in Spain

Below is an analysis carried out on all the qualifications collected in Spain in relation to the areas of expertise of the framework taken as reference and containing 44 fields.

Figure 2-27 shows the percentages of the total number of areas of expertise, in descending order, attributed to the each specific qualification and training scheme. For example, qualification S07 (ENA620_1 - Basic operations in the assembly and maintenance of renewable energy facilities) includes 22 areas out of the total 44, which corresponds to the 50%. The analysis shows that all the qualification schemes have, at least, 10% of the total amount of fields considered; 5 qualifications have between 10% and 30% of the 44 areas and the remaining 6 schemes between 30% and 50%.

In order to assess the distribution of areas of expertise across all qualifications, the analysis shown in the following table was carried out.

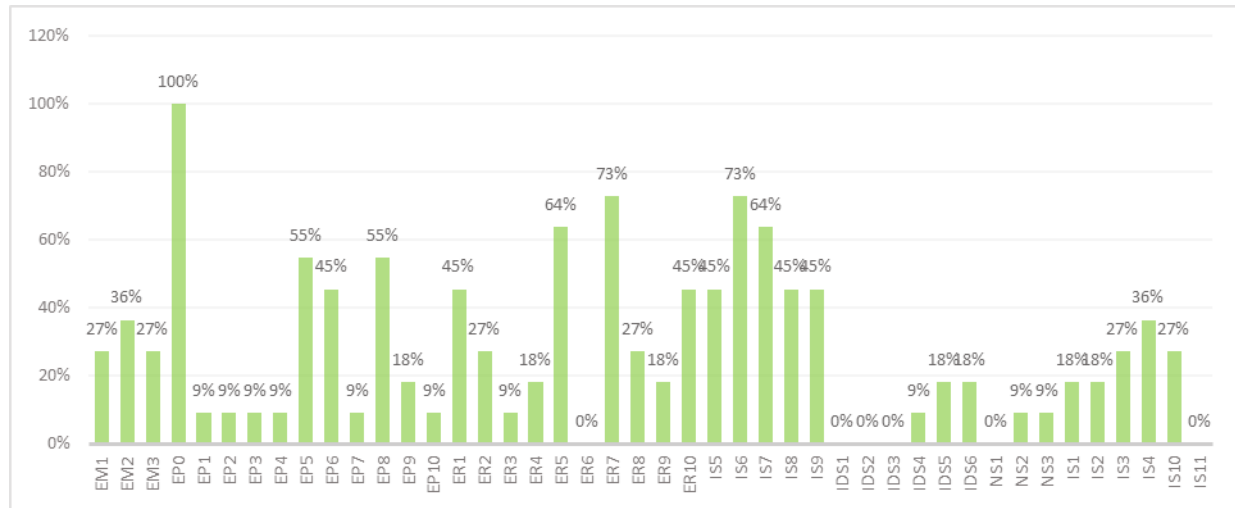


Figure 2-28 Rate of availability of each area of expertise in all the qualification schemes collected in Spain

Figure 2-28 highlights how the field EP0 - Heating and cooling GENERAL (100%) appears more frequently among all qualifications, together with ER5 - Hot water systems and IS7 - Sustainable building materials (64%), ER7 - Heating and cooling emission systems and IS6 - Integrated design (73%).

There are some areas that are represented in a lower percentage schemes, such as EP1 - Geothermal energy system, EP2 - Biomass energy production, EP3 - Biogas energy production and EP4 - District heating and cooling while others do not appear at all: for example ER6 - Window and / or glazing systems, IDS1 - Communication, IDS2 - Information management, IDS3 - Collaboration, NS1 - District heating / cooling and IS11 - Procurement.

2.7 Other Qualification schemes

In this chapter there have been 17 “other” qualifications collected that are not strictly related to the previous national qualifications: most of these schemes, although clearly characterized from the point of view of the country of origin, do not have their headquarters / training institution in one of the previously mentioned countries; they are therefore considered “international”.

Moreover, in this category we included multiple types of schemes: some can be classified as protocols for the evaluation of the sustainability of buildings, others are professional and expert qualifications.

Code	DENOMINATION	TARGET GROUPS ADDRESSED	TGA
O01	BDM Accompagnateur (BDM Attendant)	Designers (architects and engineers) and professional with experience in sustainable construction.	DP
O02	BNB Sustainable Building Expert	Designers (architects and engineers)	DP
O03	BNK Auditor	Designers (architects and engineers)	DP
O04	BREEAM AP (Advisory Professional)	Architects, engineers and others with demonstrable design skills and responsibilities who want to specialise in BREEAM.	DP
O05	BREEAM Associate	Design teams, construction teams, architects, engineers, project managers, value engineers, procurement teams, and those with an interest in environmental assessment.	DP
O06	BREEAM Certified Passive House Designer	Designers (architects and engineers)	DP
O07	BREEAM Communities Assessor	This training course is aimed at anyone who is interested in delivering BREEAM Communities Scheme assessments: planning consultants, developers, urban planners, designers.	DP
O08	BREEAM Domestic Refurbishment - New Assessor	This training course is aimed at anyone who is interested in delivering BREEAM Domestic Refurbishment assessments: building and real estate service providers/professionals, designers including architects and engineers, energy and environmental consultants.	DP
O09	BREEAM International Assessor - New Construction	This training course is aimed at anyone who is interested in delivering BREEAM environmental assessments: building and real estate service providers/professionals, designers including architects and engineers, energy and environmental consultants.	DP
O10	BREEAM International Assessor - Refurbishment and Fit-Out – Existing Assessor	Existing licensed BREEAM International New Construction Assessors	DP
O11	Certified Passive House Designer/Consultant	Professionals, designers, consultants, architects and engineers, students.	DP

O12	Certified Passive House Tradesperson	Trade persons, construction workers, craftsmen, installers.;Oth-er building professionals may join as well, to get familiar with the realities of the building site.	DP
O13	DGNB Consultant	The course addresses DGNB Registered Professional.	DP
O14	DGNB Registered Professional	The DGNB Registered Professional course is aimed at young professionals, students and keen stakeholders within the construction and real estate industry, and beyond, who would like to acquire knowledge about sustainable building and planning.	DP
O15	HQE Certification Référent Aménagement (Urban Planning)	Designers (architects and engineers)	DP
O16	HQE Certification Référent for Construction and Renovation	Designers (architects and engineers)	DP
O17	WELL AP (Accredited Professional)	Designers (architects and engineers) and who are interested in positively impacting human health through building design.	DP

Figure 2-29 List of other qualification schemes

The qualification schemes listed here belong entirely to the Design and Planning category.

The teaching methodology implemented is theoretical lectures, for all the qualifications indicated in the previous table.

None of the qualifications has a clear legislation of reference, while for most of them there is a qualification register, because these trainings and schemes are defined by the market of "sustainability assessment" of buildings.

All the collected qualifications provide at least one ULO. It is interesting to note that qualification O11 (Certified Passive House Designer / Consultant) provides 18 ULOs.

Areas of expertise matching

The below analysis has a focus on the correlation of qualifications in table 2-30 and the areas of expertise indicated in paragraph 2.1.

For the O09 and O16 qualifications (BREEAM International Assessor - New Construction and HQE Certification Référent for Construction and Renovation respectively) 18 out of 44 fields are included. This type of analysis underlines that 2 qualifications cover less than 10% of expertises, 6 are between 10% and 30% and the remaining 9 schemes between 30 and 41%.

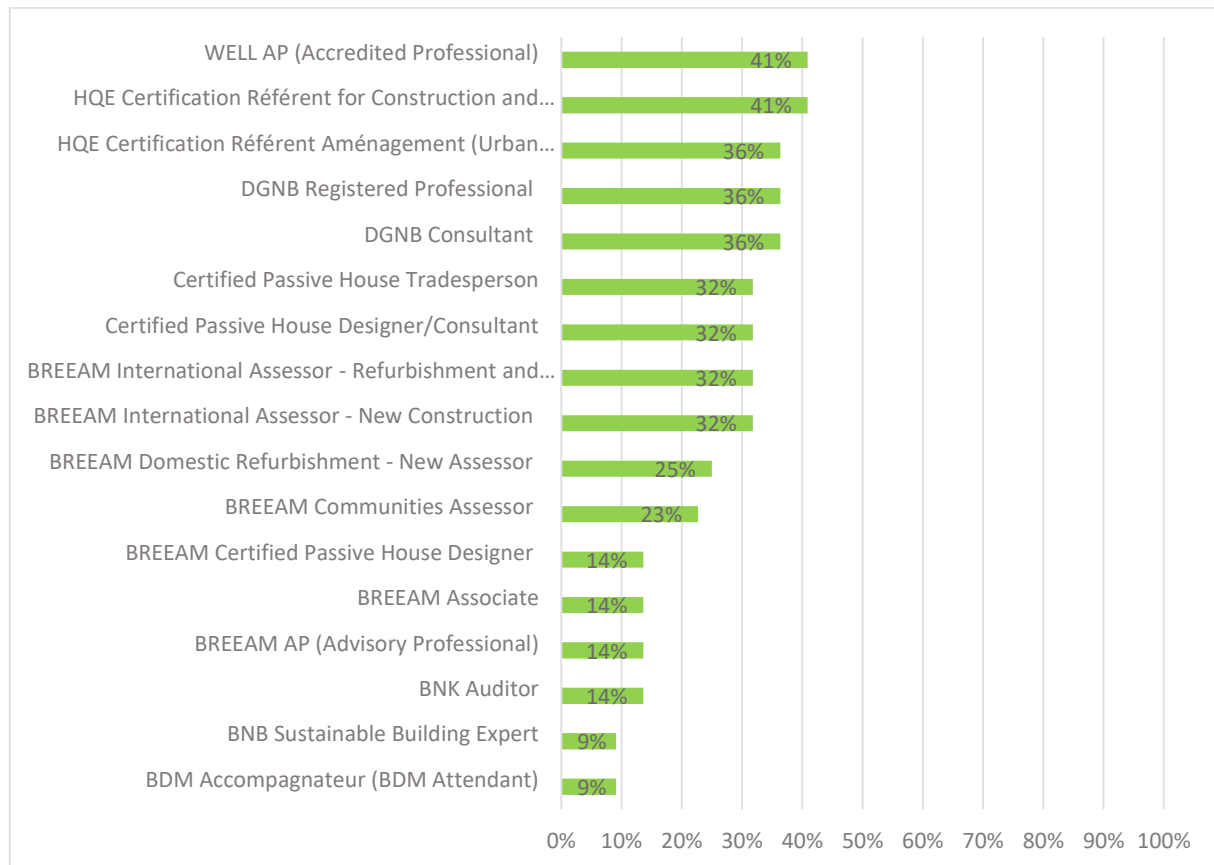


Figure 2-30 Percentage of areas of expertise (on the total of 44) included in each international qualification scheme

The analysis in the figure below was carried out in order to assess in which percentage each field of competence is present in all the qualification schemes.

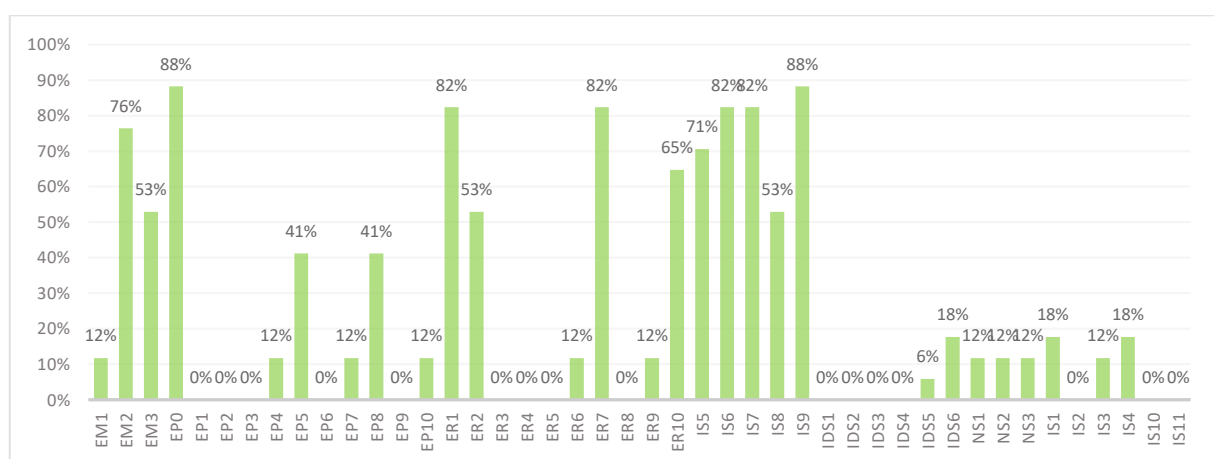


Figure 2-31 Rate of availability of each area of expertise in all the international qualification schemes

In figure 2-31, it is highlighted how the expertise EP0 - Heating and cooling GENERAL and IS9 - Environmental (indoor) quality (88%) are those with the highest percentage of qualifications, together with ER1 - Insulation, ER7 - Heating and cooling emission systems, IS6 - Integrated design and IS7 - Sustainable building materials (82%). There are some areas that are present with low percentages, such as EP4 - District heating and cooling, EP7 - Solar absorption cooling, EP10 - Combined heat and power generation, ER6 - Window and / or glazing systems, ER9 - Artificial lighting systems and others that do not appear at all like IDS1 - Communication, IDS2 - Information management, IDS3 - Collaboration and IDS4 - Quality assurance.

2.8 Summary on the analysis of qualification schemes

This chapter presents a comparison of all the relevant aspects of the qualifications analysed, in order to highlight common elements or gaps, for the definition of the competence quality standard in TRAIN4SUSTAIN project.

Considering the data collected for each qualification, a first analysis can be performed to highlight the category to which the highest number of qualification schemes are addressed. Figure 2-32 shows that the qualifications collected are mainly referred to the category of Design and Planning (DP) with 56%, followed by Building Construction Works (BCW) with 32% and, lastly, the Building Maintenance and Management (BMM) with only 12%.

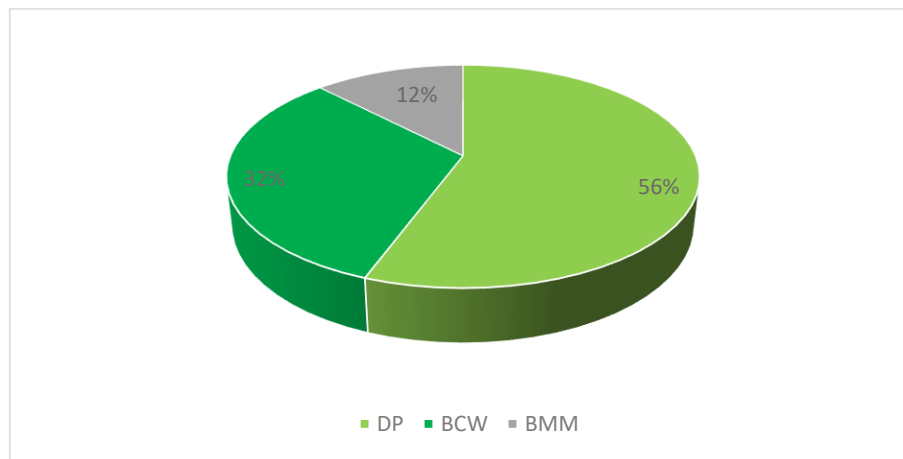


Figure 2-32 Percentage distribution of schemes within the target groups

The first consideration that we can draw from this analysis is that the qualifications available for the Design and Planning category are higher than those addressed to the other two categories.

Another aspect highlighted by this analysis is described in the figure below, which shows the percentage breakdowns of the teaching methodologies of the courses to obtain such qualifications; the data are aggregated and represent the incidence for each target group.

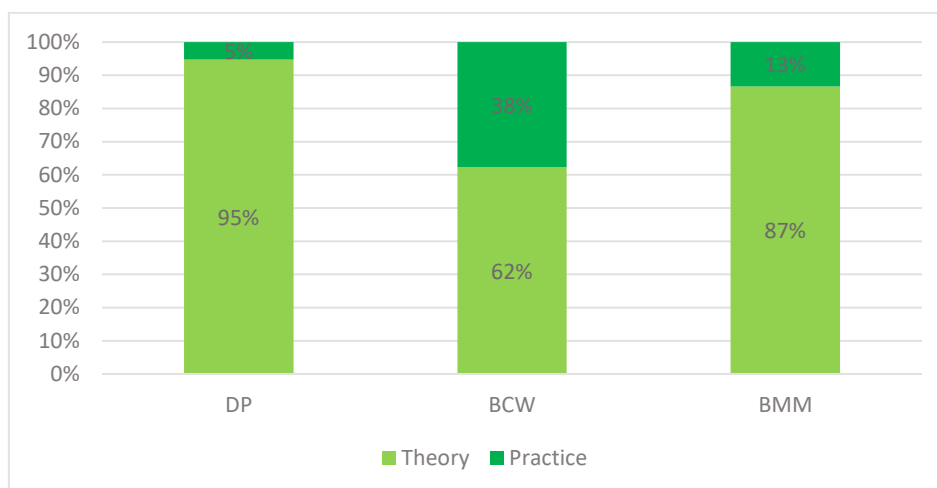


Figure 2-33 Distribution of teaching methodologies for acquisition of qualification schemes among the 3 categories

Table 2-33 highlights that for DP and BMM categories the overall teaching methodology is theoretical. This figure is referred to the type of training that nowadays is provided in the countries involved in the analysis.

Of 106 training and qualification schemes considered, reference legislation has been indicated only for 39 of them (37%). This aspect is represented in figure 2-34, where datas are divided by the three reference categories.

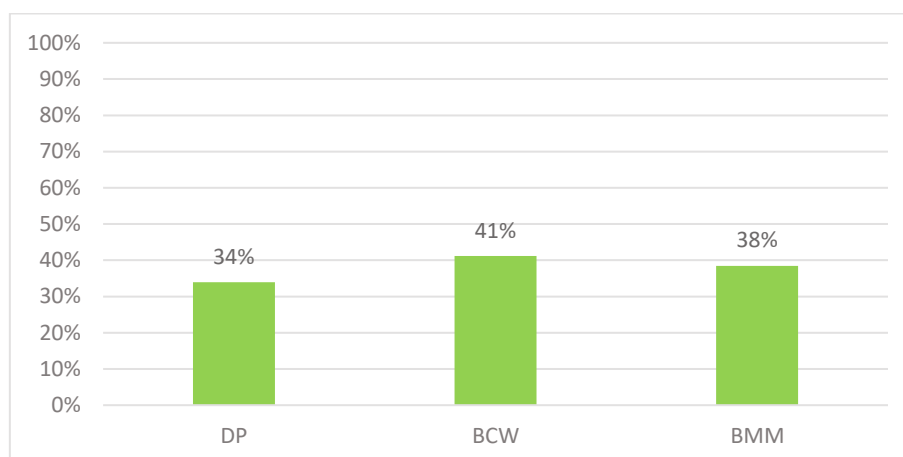


Figure 2-34 Percentage of qualification schemes with reference legislation, for each of the target group considered

The above table shows that, the average percentage is 37% and that it highlights the legislative gap in this sector.

The legislative aspect is very relevant in order to be able to create a profile who deals with environmental and energy issues and who can operate in the country with effective tools. At the moment only 1 qualification out of 3 can count on a legislative reference that is often regional rather than national.

Moreover, the analysis highlights also that only half of the qualifications and training courses (54%) are connected with a qualification register (...or they were not discovered. Otherwise this statement could be still valid!). This aspect is very important for the project's purpose, as it underlines the lack of a valid reference to registers and the difficulty in keeping track of accredited professionals in the energy/environmental sector.

The following tables compare the areas of expertise provided by the qualification and training schemes analysed, and it underlines common competences omitted. This step of the desk research is fundamental to identify the baseline of national qualification standards.

Table 2-35, 2-36 and 2-37 refer, respectively, to the 3 categories: Design and Planning, Building Construction Works and Building Maintenance Management; the percentages represent how many times each area is available in the courses or qualification schemes. For example, the value of 8% relating to the expertise EM1- Smart grid systems in the table 2-35 is obtained as the ratio between the number of qualifications that provide that expertise (5) on the total of qualification schemes for the group targeted (59 for Design and Planning).

If, to a specific area of expertise, would be assigned the value of 100% it would mean that all qualifications provide this competence.

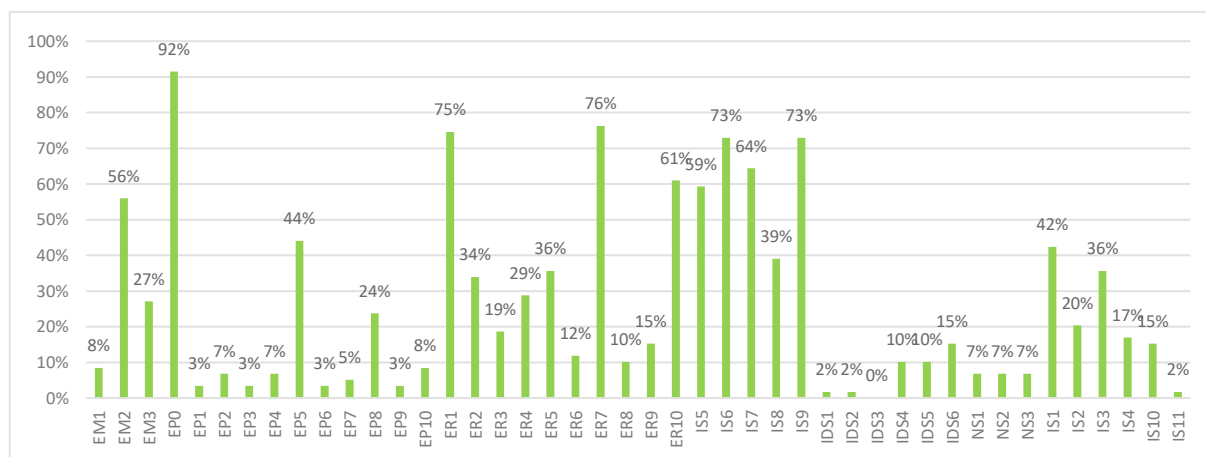


Figure 2-35 Overall rate of availability of each area of expertise in all the qualification schemes of DP group

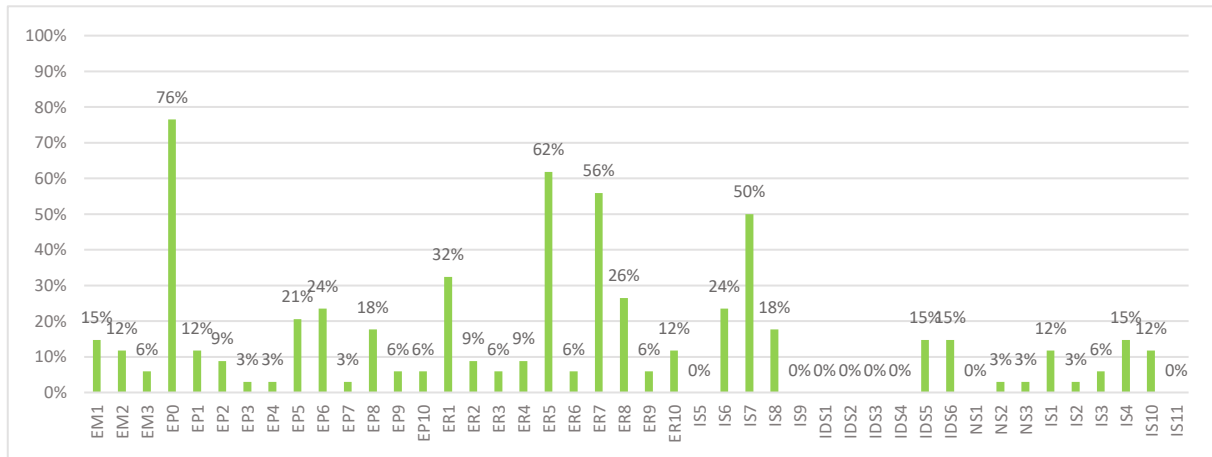


Figure 2-36 Overall rate of availability of each area of expertise in all the qualification schemes of BCW group

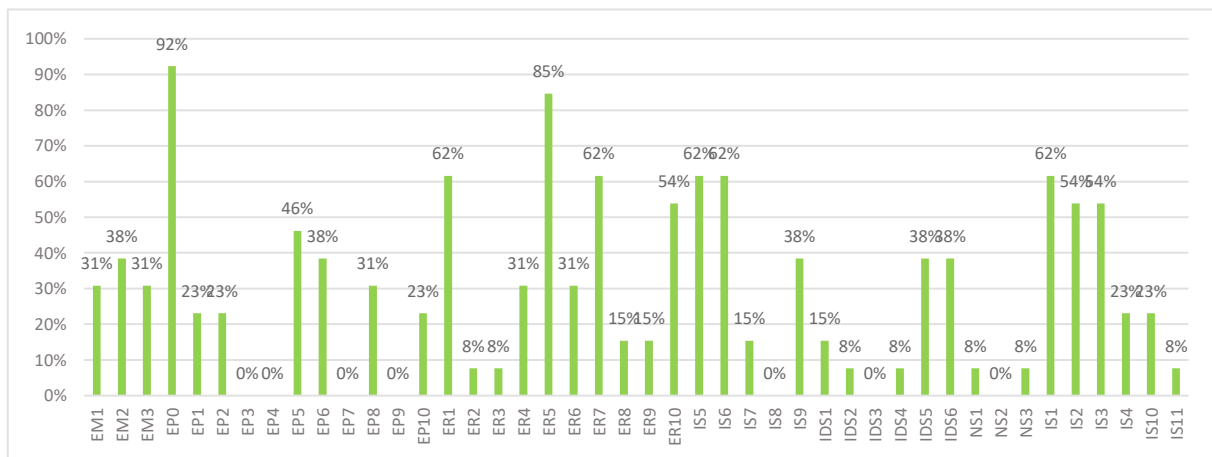
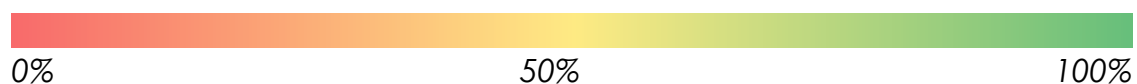


Figure 2-37 Overall rate of availability of each area of expertise in all the qualification schemes of BMM group

In order to provide a broad overview of the analysis on fields of expertise and qualification schemes, the values depicted in the previous graphs are transposed in the following tables. In order to emphasize the results of the analysis, green color has been used for percentages close to 100%, red for percentages close to 0% and yellow for medium values (as shown in the following legend):



Energy Management

Energy Management category includes 3 areas of expertise: Smart grid systems (EM1), Domotic systems homes (EM2) and Building management systems BMS (EM3); these fields deal with the electrical and energy management of all building's systems. The following table highlight that only Domotic systems for the target Design Planning is covered by more than 50% of the qualification schemes collected. For the target group Building Maintenance and Management at least 1 qualification scheme out of 3 provides knowledges in Smart grid systems.

Another relevant aspect to underline is that, for the target group Building Construction Work, the qualification schemes collected don't guarantee specific competences in the electrical and energy management of systems. This conclusion is not surprising as, among the qualification schemes considered, only few are related to these areas of expertise as, for instance, I19, I21, F07 and F20.

	ENERGY MANAGEMENT		
	EM1	EM2	EM3
Design Planning	8%	56%	27%
Building Construction Work	15%	12%	6%
Building Maintenance Management	31%	38%	31%

Energy Production (on-site and nearby renewable energy production and off-site renewable energy)

Energy production includes areas of expertise linked with systems for energy production and in detail: Heating and Cooling general (EP0), Geothermal energy systems (EP1), Biomass energy production (EP2), Biogas energy production (EP3), District heating and cooling (EP4), Planning and design of heat pump installations (EP5), Solar power systems for electricity generation (EP6), Solar absorption cooling (EP7), Solar thermal energy systems for domestic hot water and / or heating generation (EP8), Mini wind power generation (EP9), Combined Heat and Power (CHP) generation (EP10).

As highlighted by the following table, the 3 target groups provide general expertise for heating and cooling systems (EP0), while for all the others the percentages are substantially low. Planning and design of heat pump installations (EP5) deserves particular attention, as the numbers referred to it are consistent. Nowadays, the field of heat pumps is very important since it has being recognised as one of the plant systems that can lead to decarbonization and to improve the production of Renewable Energy Sources².

For the target group Building Maintenance and Management there are some fields of expertise that are not included in any of the 13 qualification schemes collected (EP3,

² European directive 2018/844 / EC amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency

EP4, EP7 and EP9). This is due to the fact that these are new sectors (for instance, Biogas) in construction industry and often there are technical and bureaucratic issues linked with the installation (as for example for the Mini wind power generation).

With regards to the production of electricity (EP6) and thermal energy (EP8), the percentages referred to the target group Design and Planning are consistently different (3% and 24%). This data highlights the low level of competence for designers, related to photovoltaics compared to solar thermal. This is probably due to the fact that in this sector the design of photovoltaic systems is very specialized and is mainly aimed at the electricity sector rather than the building-energy sector. Moreover, also for the other target groups (BCW and BMM) there is a low propensity to create skills for the production of electrical and thermal energy; this issue should be further investigated.

ENERGY PRODUCTION (on-site and nearby renewable energy production and off-site renewable energy)											
	EPO	EP1	EP2	EP3	EP4	EP5	EP6	EP7	EP8	EP9	EP10
DP	92%	3%	7%	3%	7%	44%	3%	5%	24%	3%	8%
BCW	76%	12%	9%	3%	3%	21%	24%	3%	18%	6%	6%
BMM	92%	23%	23%	0%	0%	46%	38%	0%	31%	0%	23%

Energy Reduction

The field of Energy reduction includes areas of expertise linked with the building envelope: Insulation (ER1), Air tightness building (ER2), Micro climates (ER3), Envelope systems (ER4) and other plant systems: Hot water systems (ER5), Window and / or glazing systems (ER6), Heating and cooling emission systems (ER7), Electric heating systems (ER8), Artificial lighting systems (ER9), Ventilation systems (ER10).

Compared to the two previous categories analysed (energy management and production), it appears immediately that the percentages in this field are higher. This means that the qualification and training schemes collected seem to be more sensitive to the issues of energy saving, whether it involves the envelope or the system.

In particular, it should be noted that thermal insulation (ER1) has the highest score for all the 3 target groups. For the plant engineering section, the 4 fields of expertise (ER1, ER5, ER7 and ER10) are considered fundamental for the design, execution and management of buildings and, therefore, it is not surprising that most qualifications provide this type of expertise. On the other hand, considering the areas of expertise related to Design and Planning, the lowest percentage is attributed to Electric heating systems (ER8); this aspect deserves a detailed analysis, as electrical plant systems for heating are currently not very widespread: in fact, at a regulatory level it is often not

allowed to consider the share of energy produced by Renewable Energy Source by exploiting the Joule effect³.

Another interesting aspect is the result obtained for Micro climates (ER3) since most of the qualifications do not have this competence. The low percentages in this case show how this topic is not very much relevant in the construction industry and that is not in line with what is reported in the European Directive for the evaluation of internal and external comfort of buildings.

ENERGY REDUCTION of construction										
	ER1	ER2	ER3	ER4	ER5	ER6	ER7	ER8	ER9	ER10
DP	75%	34%	19%	29%	36%	12%	76%	10%	15%	61%
BCW	32%	9%	6%	9%	62%	6%	56%	26%	6%	12%
BMM	62%	8%	8%	31%	85%	31%	62%	15%	15%	54%

Sustainable Integrated Design

The category of Sustainable Integrated Design includes the following areas of expertise: Sustainable architectural design (IS5), Integrated design (IS6), Sustainable building materials (IS7), Sustainable installation materials (IS8), Environmental (indoor) quality (IS9).

Given the fact that the qualifications collected deal with energy efficiency and sustainability, it is coherent that the presence of expertise connected with this issue are higher than in the other macro-areas, as shown in the table below. In particular, the low results of IS5 and IS9 for the target group Building Construction Work should be stressed: this is an aspect which should be improved. Sustainable architectural design, as well as the interior comfort, are clearly fields that concerns more the technicians rather than the craftsmans. Instead, the absence of IS8 (Sustainable installation materials) for the 13 Building Maintenance and Management qualification schemes, is surprising: this aspect should certainly be taken into consideration in the construction of a professional baseline in building management.

SUSTAINABLE INTEGRATED DESIGN					
	IS5	IS6	IS7	IS8	IS9
Design Planning	59%	73%	64%	39%	73%
Building Construction Work	0%	24%	50%	18%	0%
Building Maintenance Management	62%	62%	15%	0%	38%

³ European directive 2018/844 / EC amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency

Innovative Digital Solutions

Innovative Digital Solutions is the first new macro-area added to the framework of areas of expertise provided in the PROF/TRAC project. This new category includes the following fields: Building Information Modeling BIM (IDS1), GIS (IDS2), Lean Management (IDS3), Intelligent buildings (IDS4), Smart meters (IDS5), Sensors (IDS6).

Given that these are very specific and developing areas, the results highlighted in the following table are not surprising. Almost all qualification schemes collected do not take into consideration the first 4 areas of expertise, while only some of them provide expertise on sensors and smart meters. IDS5 and IDS6 are fundamental to be able to measure, quantify and manage all aspects related to the energy efficiency and sustainability of buildings. It is no coincidence that the highest percentages are those related to Building Maintenance and Management target group.

	INNOVATIVE DIGITAL SOLUTIONS					
	IDS1	IDS2	IDS3	IDS4	IDS5	IDS6
Design Planning	2%	2%	0%	10%	10%	15%
Building Construction Work	0%	0%	0%	0%	15%	15%
Building Maintenance and Management	15%	8%	0%	8%	38%	38%

Neighbourhood Solutions

As the previous one, this macro-area has also been added to the framework of PROF / TRAC project and provides the same overall results. Neighborhood Solutions include areas of expertise linked with District heating / cooling (NS1), Shared renewables (NS2) and Economy of scales (NS3) which represent new and not easy to acquire competences as highlighted also by the low percentage values in the following table.

	NEIGHBOURHOOD SOLUTIONS		
	NS1	NS2	NS3
Design Planning	7%	7%	7%
Building Construction Work	0%	3%	3%
Building Maintenance and Management	8%	0%	8%

Interdisciplinary Skills

The Interdisciplinary Skills are transversal competences that complete the figure of the professional / worker in the energy and sustainable field of construction industry. They include: Communication (IS1), Information management (IS2), Collaboration (IS3), Quality assurance (IS4), Economics (IS10), Procurement (IS11).

The most interesting results are those obtained for the target group of Building Maintenance and Management: obviously for this macro-area, communication, information and collaboration are very important. The lower percentages are those of areas of expertise related to Building Construction Work group, and this highlight the management lacks of these operators which should be improved.

	INTERDISCIPLINARY SKILLS					
	IS1	IS2	IS3	IS4	IS10	IS11
Design Planning	42%	20%	36%	17%	15%	2%
Building Construction Work	12%	3%	6%	15%	12%	0%
Building Maintenance Management	62%	54%	54%	23%	23%	8%

3 Analysis of the survey and direct interviews

3.1 Assessment rationale

The aim of this survey is to investigate the number and types of qualification schemes in the field of sustainability and energy efficiency available in different European countries, in the specific sector of construction. The results of this analysis will be fundamental for the project's next step, the design of a competence quality standard for the mutual recognition of sustainable energy skills.

A set of on-line questionnaires⁴ and direct interviews have been administered to relevant market actors, gathered in the following categories::

1. Workers and professionals of the construction industry,
2. Homeowners and SMEs representatives
3. Experts in the field of professional training

In particular the survey has considered the following 19 field of competences to be investigated with all the 3 different target categories outlined in this analysis:

1. Energy saving of buildings
2. Energy certification of buildings
3. Energy efficiency of building system plants
4. Energy performance of the building envelope
5. High energy performance buildings (nZEB)
6. Renewable energy sources
7. Environmental sustainability of building materials
8. Certification protocols and sustainability of buildings
9. Indoor environmental quality
10. Outdoor environmental quality

⁴ Compared to a traditional approach based on individual interviews, an assessment process based on a on-line survey has many positive aspects:

- Easy to use and the possibility to reach a higher number of stakeholders as the questionnaire can be filled in through computers, smartphones or tablets and can be concluded in every moment of the day;
- Multiple language, the same questions can be submitted to different target groups in different languages;
- Immediate data collection: as it is a cloud-based software, all the answers are immediately stored;
- Data cross-checking, given the possibility of collecting all data into a structured database.

11. Water conservation
12. Dynamic building energy simulations
13. Building energy management
14. Building management system (BMS)
15. Building information modelling (BIM)
16. Building diseases diagnosis
17. Building management of green spaces
18. Sustainable building management
19. Commissioning

Figures and findings resulting from the data processed have been integrated with the outcomes of the direct interviews, based on the same structure of the on-line survey, with the precise aim of adding a 'qualitative' perspective to the whole analysis. The same flow of the following paragraphs is replicating the sequence of questions administered and then processed.

3.2 On-line survey and direct interviews: the perception of workers, experts, SMEs, trainings institutions

3.2.1.1 Questionnaire for homeowners and SMEs representatives

All in total, 58 answers have been collected spreading the questionnaire in the 5 countries involved (Hungary, Italy, Spain, France and Germany), and the results described in the following paragraphs. This analysis follows the flow of the questions administered, reproducing the incidence of individual responses.⁵

What is the availability of trainings for professionals and workers in the construction sector of your region/country in the following fields of competence?

On a scale from 1 to 5, where 1 corresponds to training courses not available and 5 to wide offer of training courses the following chart reports the average of the answers for all the 19 fields of competence considered in the whole survey:

1	Energy saving of buildings	3,3
2	Energy certification of buildings	3,5
3	Energy efficiency of building system plants	3,2
4	Energy performance of the building envelope	3,4
5	High energy performance buildings (nZEB)	2,7
6	Renewable energy sources	3,2
7	Environmental sustainability of building materials	2,7
8	Certification protocols and sustainability of buildings	3,0
9	Indoor environmental quality	3,0
10	Outdoor environmental quality	2,8
11	Water conservation	2,8
12	Dynamic building energy simulations	2,7
13	Building energy management	3,1
14	Building management system (BMS)	2,9
15	Building information modelling (BIM)	2,9
16	Building diseases diagnosis	2,9
17	Building management of green spaces	2,8
18	Sustainable building management	2,7
19	Commissioning	2,9

Figure 3-1 Availability of energy sustainability trainings from the point of view of Homeowners and SMEs

⁵ The template of the administered questionnaire is included in Annex.

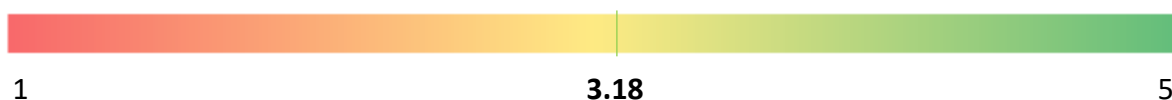
The analysis of the results, clarify that there is no dominant sector; rather the data indicate a uniform distribution.

However it is possible to note that Energy certification of buildings is the training with the highest availability (3,5 on average). This is probably due to the fact that it derives from the Directive 2002/91 / EC. Instead, Dynamic building energy simulations is the qualification scheme with the lowest score (2,7 on average) because, despite the fact that dynamic simulations of buildings are becoming an important calculation tool for evaluating the energy performance of buildings (reference to EN ISO 52016), they are not yet globally recognised and adopted.

Some schemes, have received a rating higher than 3; among these, *Buildings energy management* deserves an in-depth note because with an average score of 3.1, is one of the most important sectors, as envisaged by the recent European Directive 2018/844 / EC.

How do you evaluate the overall competences granted by the qualification schemes available in your country/region?

On a scale from 1 to 5, where 1 corresponds to poor and 5 to excellent the average score recorded is 3,18 where only 3,4% of the respondents rated the competences „quite poor”.



This definitely underlines the need to have adequate skills in the sustainability and energy efficiency of buildings field in order to improve, not only thermal and energy performance, but also to make consumption sustainable towards the environment and available resources.

This trend is confirmed also by direct interviews: the average score in the 5 countries is 3.7 but many of the respondents stated that is not easy to give an overall and comprehensive opinion. There are several differences in the trainings offered to the actors of construction field.

Have you ever asked an expert of the construction sector for a specific qualification in the field of energy sustainability? If YES, which one?

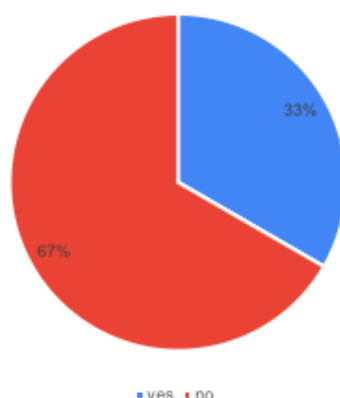


Figure 3-2 Answers of demand side of labour market to question on the request of a specific qualification

As depicted by the chart, 67% of the sample declared that he/she has never asked for a specific qualification, whilst amongst the 33% of the positive answer references have been made to: Qualibat, RGE, KfW Consulting & Promotion, Solar energy - life cycle costs, Energy saving, the Thermal properties of building materials, the Wall / building insulation, Architect engineer, Passive house design, Energy certification, Energy diagnosis, BIM, LEED AP and GREEN Accredited Assessor. It should be noted that the references reported in the open answers are referred to generic professionals (who do not have a specific qualification regarding the sustainability of buildings) and to Energy efficiency Protocols, which should not be confused with qualification schemes.

What channels have you used to find the best qualification for the work you needed?

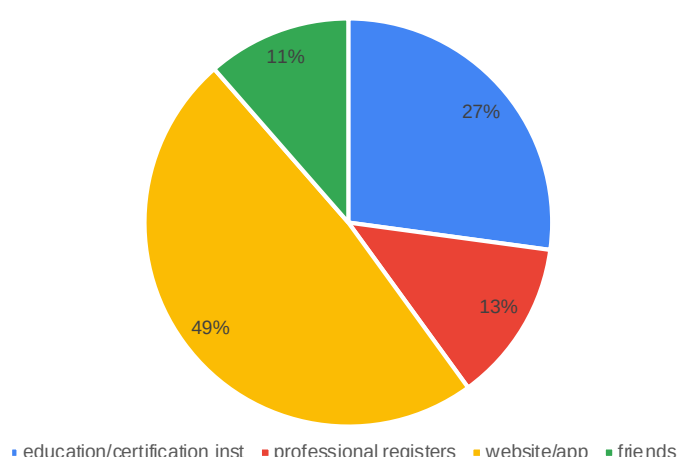


Figure 3-3 Incidence of tools used to search for an expert in energy sustainability

With the possibility of selecting more than one answer, the option Websites/APP has an incidence of the 49%, whilst Professional registers (13%) and Friends (11%) represent the less selected options.

The direct interviews have confirmed the same trend: 43% of the respondents have gathered information through websites or app, 29% contacted friends or their network of references, while the other options are not relevant. It seems that professional registers are not

considered convenient or reliable tools to obtain information on the skills and certification schemes acquired by professionals.

The results, both from the survey and direct interviews, on the use of Website/app confirms the need to create an online structure for the quick and safe identification of an expert and its qualification in the field of sustainability and energy efficiency of buildings.

Have you ever considered qualifications for energy sustainability achieved outside your country of origin?

The 87,7% of the sample answered negatively.

The direct interviews highlighted the same tendency: homeowners or SMEs are not interested in considering certifications acquired outside their country, both because there is a little awareness on the international offer and because the national offer is generally enough to satisfy their requirements.

Moreover, these results are probably linked to territorial and legislative difficulties. Several countries, i.e. Italy, have different energy-related laws at the regional level that often complicate the search for an energy sustainability expert at a national level and therefore it would be even more difficult to get and compare information on a profile trained in another state.

Have you encountered problems in considering qualifications for energy sustainability acquired in countries other than yours? If YES, which one?

Only the 20,8% of the sample confirmed encountering problems in considering a qualification scheme obtained in another country; of this group 43% affirmed that the main reason was the Absence of operating procedures that allow recognition of qualifications and in the 22% of the cases both the Lack of data and Language barriers have been perceived as problems.⁶

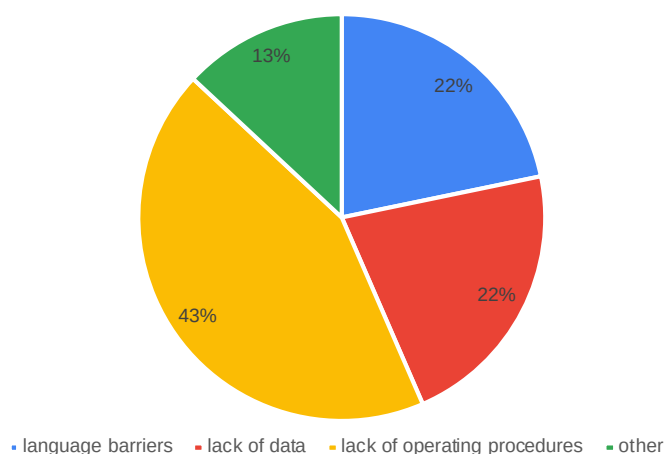


Figure 3-4 Barriers to the evaluation of foreign qualifications

According to the direct interviews conducted by partners, only 15% of the respondents declared that they have encountered problems in evaluating qualifications acquired in other countries. The reason pointed out is, as already underlined by the survey, the Absence of operating procedures that allow recognition of qualifications.

Of the 85% who stated that they didn't meet any issues, some have underlined that when asking for international qualifications (such as BREEM, LEED, WELL), cultural or linguistic barriers have never arisen. Other interviewed stated that, in order to avoid such issues, they have always hired translators and interpreters.

⁶ Amongst the option 'Other' the most significant were Different specific requests, for example LEED protocols and Differences between methodologies, tools and procedures.

What are the skills and competencies you look for in an energy sustainability expert?

With the possibility of selecting more than one answer, the option Energy reduction has an incidence within the options of 21%, whilst Innovative digital solutions (10%) and especially Neighbourhood solutions (5%) represent the less selected options.

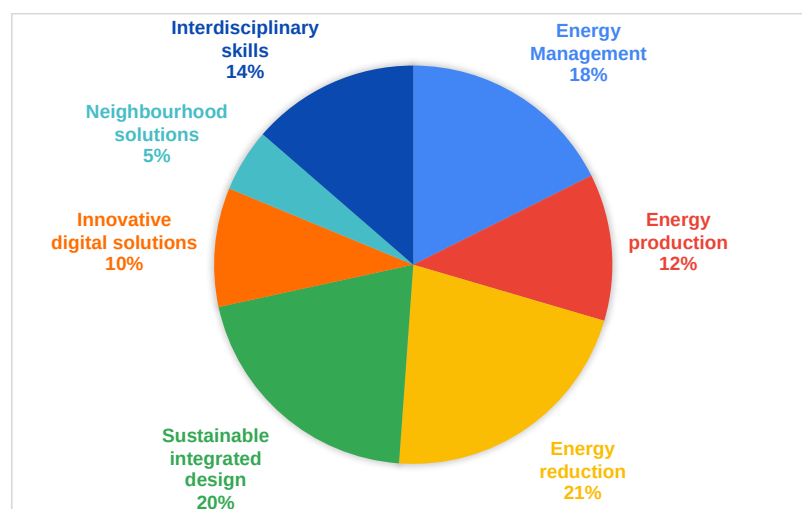


Figure 3-5 Skills more requested on the labour market by the demand side

The result is in accordance with what was highlighted in paragraph 2.8 (summary of qualifications) which underlined an higher frequency of skills acquired for most of the qualifications collected. In particular, two of the skills acquired within almost all of the qualification schemes for the category Design and Planning, was that relating to energy savings obtained with thermal insulation (ER1) and sustainable design (IS5).

Some of the homeowners and SMEs representatives interviewed declared that what they do look for is an expert with transversal knowledge; in fact, they would look for a specialist if they need to solve a specific issue but when it comes to the sustainability of a whole building and considering all the different aspects this job involves, they would prefer to hire a professional who has knowledges in all the possible fields involved.

Were you able to compare the different qualifications of the expert on the market, in order to select the most suitable profile?

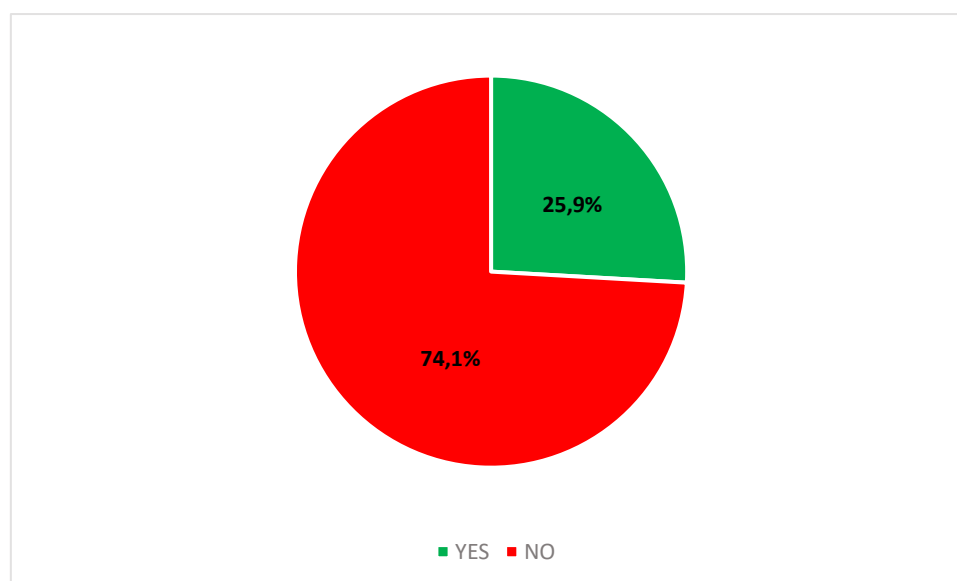


Figure 3-6 Possibility to compare different qualification schemes available on the market (for the demand side)

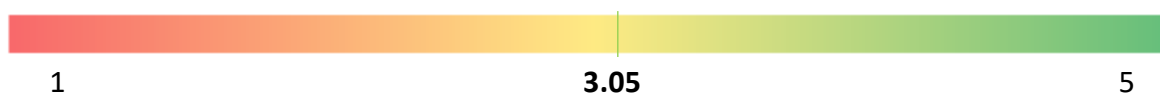
74,1% of the sample answered negatively. This result confirms the need to identify a clear reference framework to evaluate and classify qualification schemes in the area of sustainability and energy efficiency of buildings: at the moment, it is not possible to compare the available qualifications.

The interviewed people are more positive with regards to this aspect: they confirm the possibility to compare different professionals and the respective qualifications, as they frequently use their network of contacts and analyse the references of the experts. Anyway, most of the respondents have also highlighted that it is not always easy to distinguish when a skill is only “on paper” or an effective competence.

A relevant exception are the interviews conducted in Hungary: 100% of the respondents stated that they were not able to compare the different qualifications of professionals, in order to select the most experienced and skilled. It appears that, in this country, a system to evaluate and compare experts' profiles and competences is completely lacking.

How do you evaluate the overall offer of experts with energy sustainability qualifications in the construction sector of your country/region?

On a scale from 1 to 5, where 1 corresponds to poor and 5 to excellent, the average score recorded is 3,05 where only the 5,3% rated the competences „quite poor”.



The situation described by the direct interviews is not different: the average score is 3,08 but this is the overall result; in some countries the situation is more critical than in others. In Hungary, for instance, the average is only 2,5.

The results show that there is a sufficient offer of experts in the field of sustainability and energy efficiency, probably because of the multiple skills that could be attributed to the professionals. Anyway, it should be emphasized that often in the construction sector a professional proposes himself with a varied range of experiences, even if not exactly pertinent with the job he has to perform. This could distort the perception of the employers.

3.2.1.2 Questionnaire for professionals and workers of construction sector

All in total, 158 answers have been collected spreading the questionnaire in all the 5 project countries, resulting in the picture described below. This analysis follows the flow of the questions administered reproducing the incidence of individual responses.⁷

What is the availability of training in the field of energy sustainability for professionals and workers in the construction sector in your region/country?

On a scale from 1 to 5, where 1 corresponds to *training courses not available* and 5 to *wide offer of training courses* the following chart reports the average of the answers for all the 19 fields of competence considered in the survey:

1	Energy saving of buildings	3,4
2	Energy certification of buildings	3,4
3	Energy efficiency of building system plants	3,2
4	Energy performance of the building envelope	3,4
5	High energy performance buildings (nZEB)	2,7
6	Renewable energy sources	3,3
7	Environmental sustainability of building materials	2,5
8	Certification protocols and sustainability of buildings	2,5
9	Indoor environmental quality	2,6
10	Outdoor environmental quality	2,4
11	Water conservation	2,3
12	Dynamic building energy simulations	2,4
13	Building energy management	2,6
14	Building management system (BMS)	2,4
15	Building information modelling (BIM)	3,1
16	Building diseases diagnosis	2,4
17	Building management of green spaces	2,1
18	Sustainable building management	2,4
19	Commissioning	2,2

Table 3-1 Availability of energy sustainability trainings for professionals and workers

Whilst *Energy saving of buildings* is the training with the highest availability (3,4 on average), *Building management of green spaces* is the competence with the lowest score (2,1 on average).

The result obtained from the survey administered to professionals and workers is in line with that carried out within homeowners and SMEs managers, except for the fact that it is perceived from a different point of view: being directly and effectively in charge of the job, their perception could be closer to reality. In fact, it is noted that the sectors

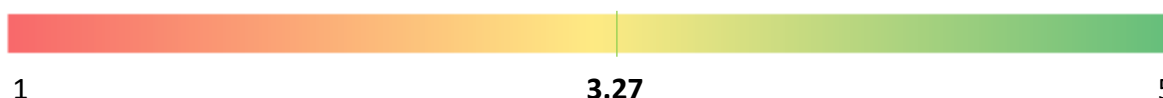
⁷ The template of the administered questionnaire is included in Annex.

where there is a lack of training are precisely those that are emerging today and were not relevant in the past. For instance, *water conservation, outdoor environmental quality* and the *management of green spaces* in the building sector. In particular, these three sectors have started to gain importance when the issue of sustainability was brought back into the legislative sphere (European Directive 2014/25 / EC).

The interviews confirm the results collected through the survey: *Energy saving of buildings* is one of the most available in all countries, because it has a generic perspective. *Building management of green spaces*, instead, is not even mentioned by most of the interviewed people.

What is your perception on the overall relevance of qualifications in the field of energy sustainability in the construction sector of your country/region?

On a scale from 1 to 5, where 1 corresponds to *poor* and 5 to *excellent* the average score recorded is 3,27 where only the 8,3% rated the competences quite poor.

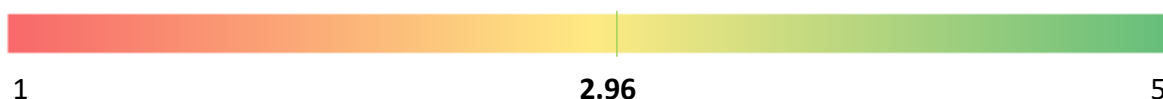


According to the interviewees, the score is even higher: the overall satisfaction of relevance of these courses and qualifications is good, but the situation in the countries considered is different. In Hungary, for instance, the certifications and courses to acquire skills in energy sustainability are considered absolutely important but not adequate to the specific context: the teaching methodology is too theoretical and doesn't provide enough practical skills. A similar perception is also registered in France.

Nowadays, many calls for tenders for the construction or renovation of public buildings require an expert in sustainability (for example, in Italy it's required by the Legislative Decree 50/2016), able to design and verify the minimum criteria of energy sustainability. The need for rules that define this figure through a valid regulatory criterion is also felt both by professionals who have worked in this sector for years and by those who are entering the labour market and who would like to pursue a specific professional career.

Generally speaking, to what extent, according to your experience, professional qualifications in the field of energy sustainability are valuable on the constructions' labour market of your country/region?

On a scale from 1 to 5, where 1 corresponds to *poor* and 5 to *excellent* the average score recorded is 2,96 where 9,6% rated the competences quite poor.



This result is aligned with the survey administered to homeowners and SMEs representatives.

The trend is sensibly higher when it comes to the direct interviews (3,5 on average); however, the demand for these experts in the construction market today is questionable. The common perception is that the profile of energy sustainability expert is not very well known yet and that it is a profitable business but still “under construction”.

In your country or region, is there the possibility of acquiring formal qualifications (issued by certification bodies or institutions responsible for this activity) by demonstrating work experience in the field of energy sustainability?

As depicted by the figure, the answers are uniformly distributed: 53% of the respondents to the web survey answered negatively.

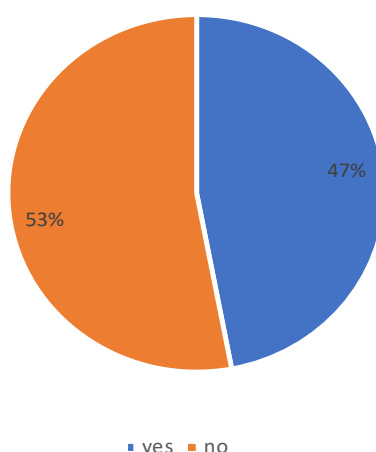


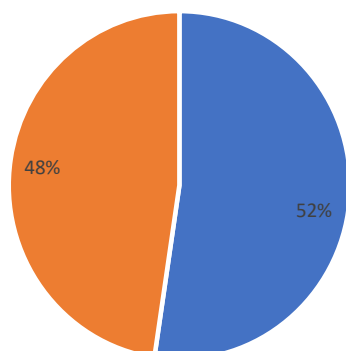
Figure 3-7 Answers on the possibility for professionals and workers to acquire a qualification thanks to work experience

The answers collected highlight that only half of the interviewees is aware of the possibility of acquiring a formal qualification through specific on-field experiences. This is probably linked with the fact that, even if the issue of sustainability has been widely discussed since several years, only with the European Directive of 2014⁸ a coherent and official structure has been developed.

The proportion is even higher for the answers of the direct interviews when considering that 50% of the respondents said that it is not possible and the other half answered that they are not informed about this possibility.

⁸ DIRECTIVE 2014/25/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on procurement by entities operating in the water, energy, transport and postal services sectors and repealing Directive 2004/17/EC

In your country or region, is there an opportunity to acquire formal qualifications (issued by certification bodies or institutions responsible for this activity) by demonstrating participation in training not leading to certification?



■ yes ■ no

Figure 3-8 Answers on the possibility to acquire formal qualification by participating to training not leading to certification

The distribution of the answers to this question are similar to the previous one: half of the respondents answered positively, half negatively.

Instead, 96% of the respondents to the direct interviews stated that it is not possible to acquire a formal qualification by demonstrating the participation in a training not leading to a certification. In fact, most of the qualifications request a demanding learning course and a final official exam.

Like in the previous question, also in this case only one out of two interviewees are aware that it is possible to obtain a formal qualification through a specialization course. This result is in line with the wide list of qualification and training schemes collected and analysed in chapter 3: most of

these courses and learning paths do not provide an official and certified qualification or title: they contribute to the training and acquisition of specialized skills and knowledges.

Have you ever obtained a qualification in one of the following areas of competence of the energy sustainability field? If YES, which one?

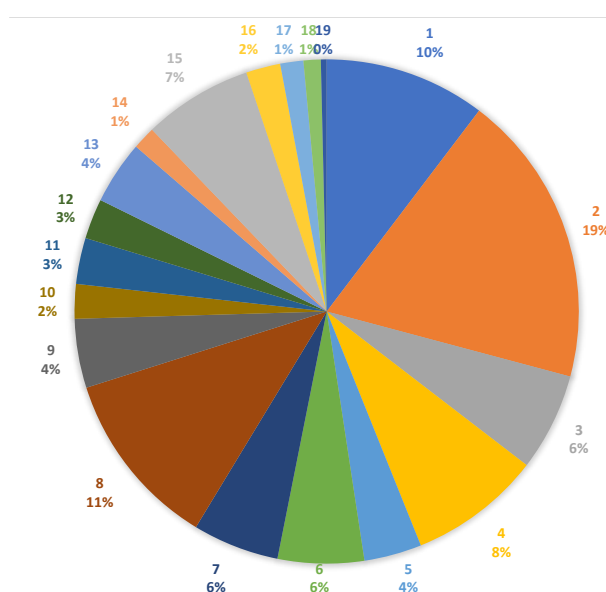


Figure 3-9 Qualification acquired by the respondents

63,4% of the sample declared to have obtained a qualification in one of the areas of competence investigated by the project⁹ out of which the option *Energy certification of buildings* has an incidence of 19% whilst *Commissioning* (with 0,5%) represents the least selected option.¹⁰

The topics of energy saving and building certification are certainly the most regulated by norms, compared to all the other issues in the energy sector of buildings. For this reason, the highest percentages of 10% and 19% concern these sectors. Even the 8% result on the *Certification protocols and sustainability of buildings* is interesting as it highlights the growing interest of workers and professionals toward this topic.

The results of the interviews highlight that more than half of the respondents (54%) have never obtained a qualification in one of the listed areas of competences. For the others interviewees, the most represented fields are *renewable energy sources* and *energy performance of the building envelope*.

On the contrary, the reasons that hinder the achievement of qualifications in the field of energy sustainability have been identified as depicted in the chart with the following coding:

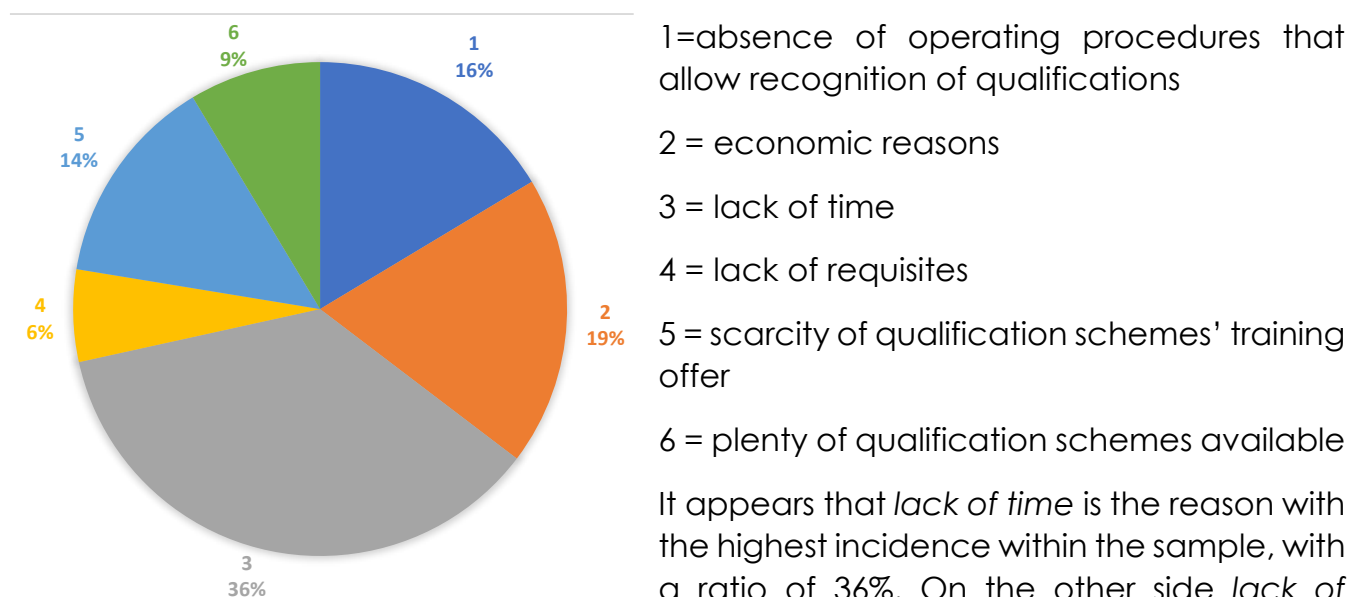


Figure 3-10 Barriers to the acquisition of energy sustainability qualifications

It appears that *lack of time* is the reason with the highest incidence within the sample, with a ratio of 36%. On the other side *lack of requisites* has an incidence of only 6%.

This result could be due to the fact that the skills necessary to cover these fields require a considerable learning effort, also in terms of time in following the training courses. Many training courses specifically last up to 3 years and, often, this aspect is a huge limit in acquiring this competence.

⁹ Refer to the introduction of this chapter.

¹⁰ In this case the sample had the possibility of selecting more than one answer.

These results are confirmed by the direct interviews: 65% of the respondents affirmed that, even if they have acquired a qualification, the main reasons that hinder the achievement of a qualification is the lack of time. According to the interviewed people, this is due to the poor level of flexibility of their working schedule and the low understanding of the customers; workers and professionals often have to choose between accomplishing a job or a training course.

Another aspect underlined by the respondents is that, in their field of activity learning by practice or through confrontation with experts is more valuable than attending a theoretical lesson to achieve a qualification.

3.2.1.3 Questionnaire for experts and representatives of national/regional qualification schemes operators

In total, 35 answers have been collected spreading the questionnaire in all the 5 project countries, resulting in the picture described below. This analysis follows the flow of the questions administered, reproducing the incidence of individual responses.¹¹

Considering the following target categories, indicate for which of them there is a training offer in the field of energy sustainability (in your country / region)

On a scale from 1 to 5, where 1 corresponds to training courses not available and 5 to wide offer of training courses, the chart alongside reports the average of the answers related to the 3 categories of market actors here considered:

- 1) Professionals (architects, engineers, ...), being the most available,
- 2) Trainers,
- 3) Workers of construction sectors, being the less available.

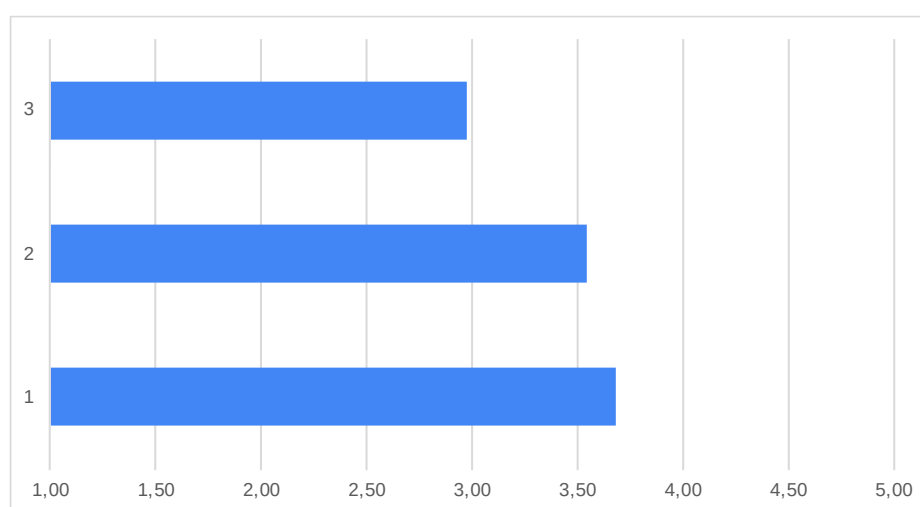


Figure 3-11 Availability of training offer for the 3 categories considered

The same trend is confirmed also by the direct interviews: the training offer for professionals is abundant, for trainers is present but not enough developed and consistent. One of the interviewed people suggested that “It would be desirable to be able to establish with the agents of the different Professional Associations a system of homologation from a flexible program, to allow the different professionals of construction industry with adequate training to have an official recognition”.

The least served category is workers, for whom the training offer in the field of energy sustainability is still at an embryonal phase. The respondents underlined that it is

¹¹ The template of the administered questionnaire is included in Annex.

necessary to raise the awareness of these actors and to train them in a homogeneous way: at the moment, “the vocational training is very fragmentary, without a global vision of how to understand what a sustainable building should be, how to build in a sustainable way”. Instead, this project should foster the dialogue between all the different target groups of the construction industry, to teach them to speak in the same language and to cooperate.

How do you rate the quality of training courses (if available) in the field of energy sustainability, for PROFESSIONALS in the construction sector in your country / region?

On a scale from 1 to 5, where 1 corresponds to *poor* and 5 to *excellent* the following chart reports the average of the answers for all the 19 filed of competence considered in the whole survey:¹²

1	Energy saving of buildings	3,8
2	Energy certification of buildings	3,7
3	Energy efficiency of building system plants	3,5
4	Energy performance of the building envelope	3,6
5	High energy performance buildings (nZEB)	2,9
6	Renewable energy sources	3,4
7	Environmental sustainability of building materials	2,6
8	Certification protocols and sustainability of buildings	2,9
9	Indoor environmental quality	2,6
10	Outdoor environmental quality	2,8
11	Water conservation	2,4
12	Dynamic building energy simulations	2,7
13	Building energy management	3,1
14	Building management system (BMS)	2,5
15	Building information modelling (BIM)	3,0
16	Building diseases diagnosis	3,0
17	Building management of green spaces	2,6
18	Sustainable building management	2,9
19	Commissioning	2,5

Figure 3-12 Evaluation of training offer in energy sustainability for professionals

Whilst *Energy saving of buildings* is the training with the highest quality perception (3,8 on average) *Water conservation* is the one with the lowest score (2,4 on average).

As for the data collected in the previous surveys, the results are in line as they highlight also in this case a low evaluation of the topic *water conservation*, compared to the other categories.

¹² See the details on the introduction to this chapter.

In addition to what emerged from the survey, energy sustainability training for professionals should have a much greater presence in university and academic courses, as well as in undergraduate training.

According to the interviewed people, there is enough availability of training for this category but:

- These courses are fragmentary and very specific, for example the courses on energy efficiency do not take into consideration that the facilities are part of global projects where other aspects related to sustainability and architectural design are interrelated.
- Excessive reliance on technology to solve everything, we tend to deal with more complex systems than necessary when we don't address root issues.

How do you rate the quality of training courses (if available) in the field of energy sustainability, for TRAINERS in the construction sector in your country / region?

On a scale from 1 to 5, where 1 corresponds to *poor* and 5 to *excellent* the following chart reports the average of the answers for all the 19 filed of competence considered in the whole survey:

1	Energy saving of buildings	3,6
2	Energy certification of buildings	3,6
3	Energy efficiency of building system plants	3,1
4	Energy performance of the building envelope	3,5
5	High energy performance buildings (nZEB)	3,0
6	Renewable energy sources	3,4
7	Environmental sustainability of building materials	2,8
8	Certification protocols and sustainability of buildings	3,1
9	Indoor environmental quality	2,7
10	Outdoor environmental quality	2,8
11	Water conservation	2,7
12	Dynamic building energy simulations	2,5
13	Building energy management	3,2
14	Building management system (BMS)	2,7
15	Building information modelling (BIM)	3,1
16	Building diseases diagnosis	3,1
17	Building management of green spaces	2,6
18	Sustainable building management	2,9
19	Commissioning	2,6

Figure 3-13 Evaluation of training offer in energy sustainability for trainers

Energy saving of buildings is still the training with the highest quality perception (3,6 on average) and *Dynamic building energy simulations* is the one with the lowest score (2,5 on average).

The interviewed people stated that the overall availability of trainings for trainers is good; what it's relevant to highlight is the fact that the quality and deepness of trainings vary considerably with respect to the providing institution.

How do you rate the quality of training courses (if available) in the field of energy sustainability, for WORKERS in the construction sector in your country / region?

On a scale from 1 to 5, where 1 corresponds to *poor* and 5 to *excellent* the following chart reports the average of the answers for all the 19 filed of competence considered in the whole survey:

1	Energy saving of buildings	2,9
2	Energy certification of buildings	3,0
3	Energy efficiency of building system plants	3,0
4	Energy performance of the building envelope	2,9
5	High energy performance buildings (nZEB)	2,4
6	Renewable energy sources	3,1
7	Environmental sustainability of building materials	2,5
8	Certification protocols and sustainability of buildings	2,5
9	Indoor environmental quality	2,3
10	Outdoor environmental quality	2,2
11	Water conservation	2,3
12	Dynamic building energy simulations	2,2
13	Building energy management	2,6
14	Building management system (BMS)	2,1
15	Building information modelling (BIM)	2,2
16	Building diseases diagnosis	2,4
17	Building management of green spaces	2,1
18	Sustainable building management	2,5
19	Commissioning	2,2

Figure 3-14 Evaluation of training offer in energy sustainability for workers

For the category of workers, *Renewable energy sources* is the training with the highest quality perception (3,1 on average) whilst *Building management system (BMS)* is the one with the lowest score (2,1 on average).

In the question administered to workers, the result clarifies that energy sustainability deals mainly with *Renewable energy sources* since there are more courses in this sector than others. The average perception for *Building management system (BMS)* compared to the other categories deserves an in-depth analysis as it goes against the trend with what is required by the new European directive 844/2018 / EC.

The direct interviews didn't allow an overall analysis: in fact, all the respondents have underlined that the quality, deepness, usefulness of training varies from profession to profession, class to class and depends on the actual education body e.g. companies, or dedicate trainers of workers. Moreover, the interviewed people highlighted the lack of a global training in construction and construction techniques, related to energy sustainability.

The following tables reproduce the comparative picture of the perception referred to the 3 target sectors:¹³

N.	Training courses	PROFESSIONALS	TRAINERS	WORKERS
1	Energy saving of buildings	3,8	3,6	2,9
2	Energy certification of buildings	3,7	3,6	3,0
3	Energy efficiency of building system plants	3,5	3,1	3,0
4	Energy performance of the building envelope	3,6	3,5	2,9
5	High energy performance buildings (nZEB)	2,9	3,0	2,4
6	Renewable energy sources	3,4	3,4	3,1
7	Environmental sustainability of building materials	2,6	2,8	2,5
8	Certification protocols and sustainability of buildings	2,9	3,1	2,5
9	Indoor environmental quality	2,6	2,7	2,3
10	Outdoor environmental quality	2,8	2,8	2,2
11	Water conservation	2,4	2,7	2,3
12	Dynamic building energy simulations	2,7	2,5	2,2
13	Building energy management	3,1	3,2	2,6
14	Building management system (BMS)	2,5	2,7	2,1
15	Building information modelling (BIM)	3,0	3,1	2,2
16	Building diseases diagnosis	3,0	3,1	2,4
17	Building management of green spaces	2,6	2,6	2,1
18	Sustainable building management	2,9	2,9	2,5
19	Commissioning	2,5	2,6	2,2

Figure 3-15 Perception of the training availability for the 3 categories (table)

¹³ Serie 1 corresponds to Professionals, Serie 2 to Trainers and Serie 3 to Workers.

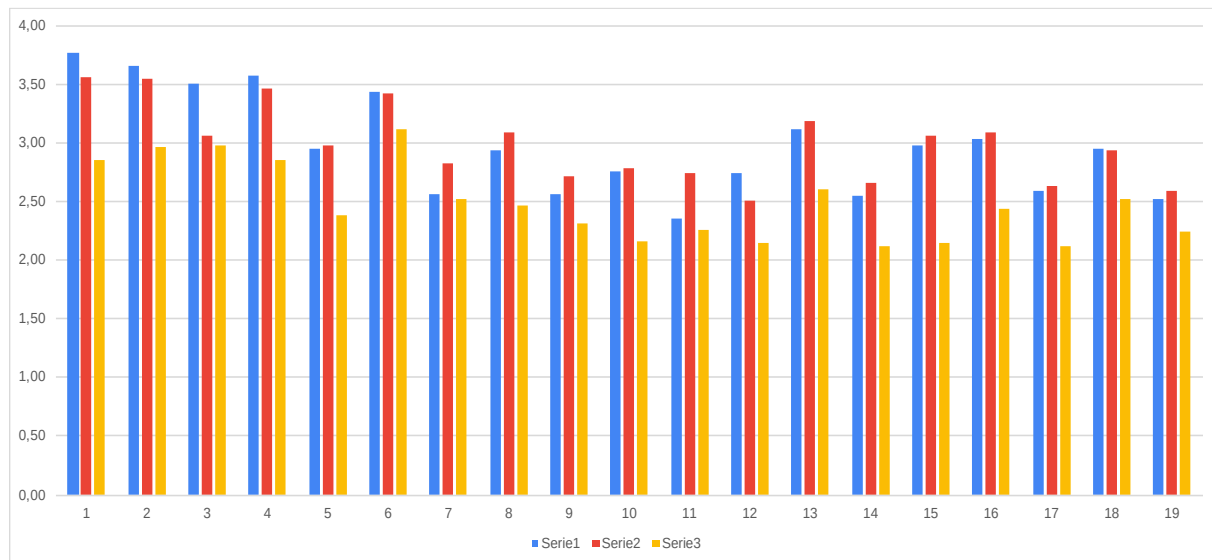


Figure 3-16 Perception of availability of trainings for the 3 categories (histogram)

From the data depicted, it emerges immediately how the perception of training availability for workers is significantly lower than for the other two categories (Professionals and Trainers); in these cases, in fact, the results are more evenly distributed. Some of these qualification and training schemes, such as *Renewable energy sources*, are present in the 3 categories with the same level, because this topic is addressed in a transversal manner both for the sustainability and efficiency of the building systems. Others schemes, instead, such as *Water conservation*, have a low score for all the 3 categories. This competence, as already mentioned above, is on the rise, especially in the field of environmental sustainability, rather than pure energy sustainability.

What professional qualifications, referring to the areas of competence of energy sustainability, are required on the labour market?

Having the same areas of competence investigated by the project¹⁴ in the background, *Energy saving of buildings*, *Energy certification of buildings* and *Energy performance of the building envelope* are the most selected options (with an incidence of 9%) whilst *Water conservation* and *Building management of green spaces* (2%) represent the less selected option.¹⁵

The percentages are fairly distributed among all the qualification and training schemes, ranging between 5-6%, except for the schemes that concern energy savings, energy certification and energy efficiency of the systems (1, 2 and 3) and the performance of the envelope (4) which are between 8 and 9%. Other schemes seem to be less interested in energy sustainability such as *Outdoor environmental quality*, *Water conservation*, *Building's management system (BMS)*, *Building management of green spaces* (with percentages between 2 and 3%).

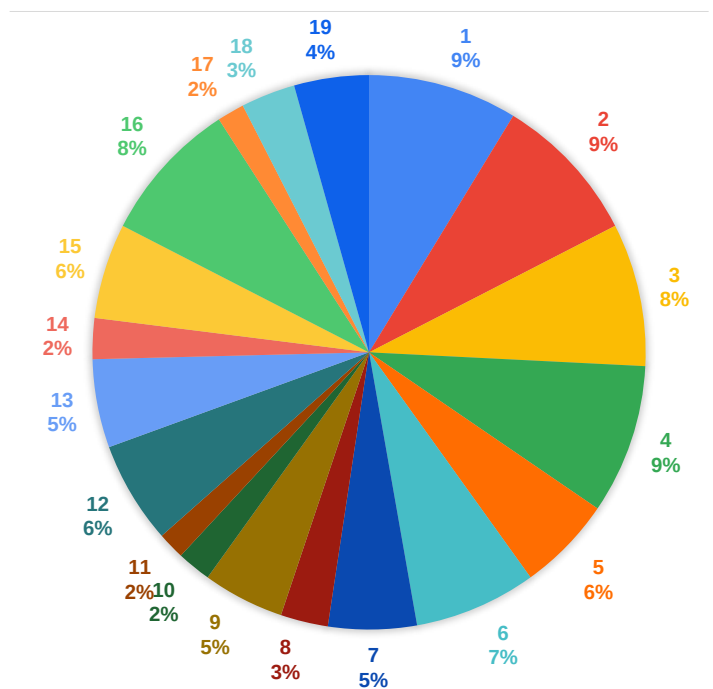


Figure 3-17 Energy sustainability qualifications requested by the market

The direct interviews highlighted a similar trend: the most mentioned options are *energy performance of the building envelope*, *renewable energy sources* and *building information modelling (BIM)*. Apparently, this is due to the fact that these 3 knowledges are nowadays considered as mandatory work in the field of energy sustainability; the labour market has a short-term vision, it flows following the trends. Therefore, at the moment the focus is on these skills, but new ones (like *high energy performance buildings Nzeb* and *energy saving of buildings*) are emerging.

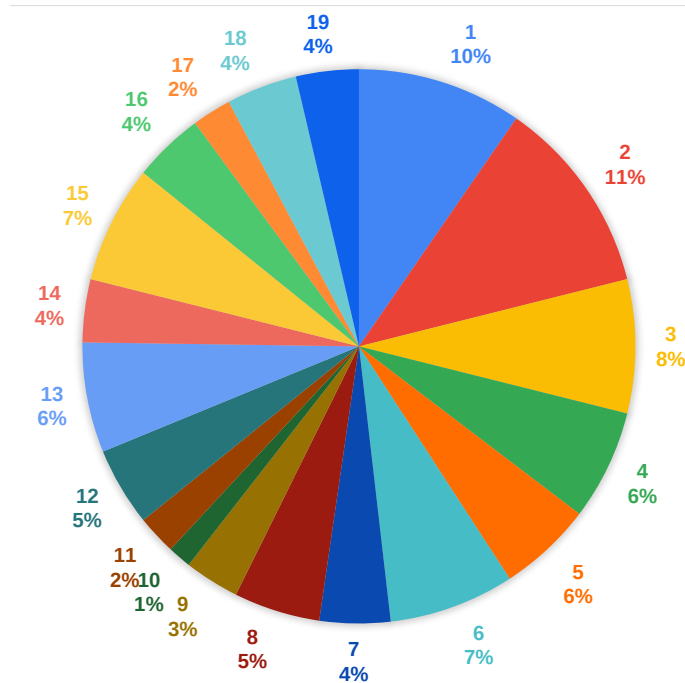
One of the interviewed stated that “Qualifications related to innovative aspects and linked to concepts such as life cycle analysis, the circular economy, the ecological transition and the economic and social aspects related to health have yet to appear”. Energy sustainability, considering the overall meaning of this concept, is not yet a required career.

¹⁴ Refer to the introduction of this chapter.

¹⁵ In this case the sample had the possibility of selecting more than one answer.

What professional qualifications, referring to the areas of competence of energy sustainability, are available on the labour market?

Again, having the same areas of competence investigated by the project¹⁶ in the background, *Energy saving of buildings* and *Energy certification of buildings* are the most selected options (with an incidence of 11%) whilst *Outdoor environmental quality* (1%) represents the less selected option.¹⁷



At a first glance, it would seem that the results obtained from this survey are similar to the previous analysis, but comparing them with each other it's possible to detect some interesting differences.

The following chart reproduces the comparative picture of the perception manifested with reference to the competences required and the ones available in the labour market:¹⁸

Figure 3-18 Energy sustainability qualifications available on the market

¹⁶ Refer to the introduction of this chapter.

¹⁷ In this case the sample had the possibility of selecting more than one answer.

¹⁸ *Serie 1* corresponds to competences required and *Serie 2* to competences available.

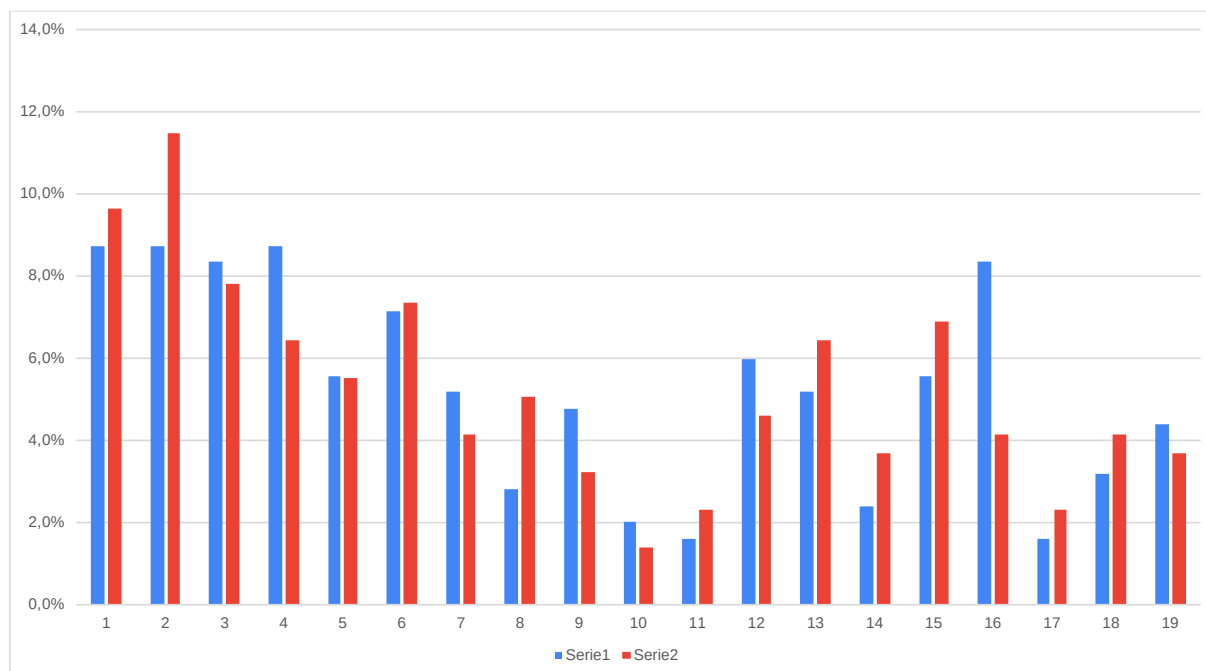


Figure 3-19 Comparison between request and availability of qualification schemes on the market

For example, it is possible to note that in all the qualification and training schemes there is always a difference between perceived supply and demand; in some cases, this difference is higher than in others. Considering the *Energy certification of buildings* (number 2) and the *Certification protocols and sustainability of buildings* (number 8) it would seem that the request (respectively 8.7% and 2.8% is lower than the availability (respectively 11.5% and 5%). On the contrary, instead, for *Energy performance of the building envelope* and *Building diseases diagnosis* there seems to be a demand higher than the availability. The same trend can be detected for *Dynamic building energy simulations* scheme.

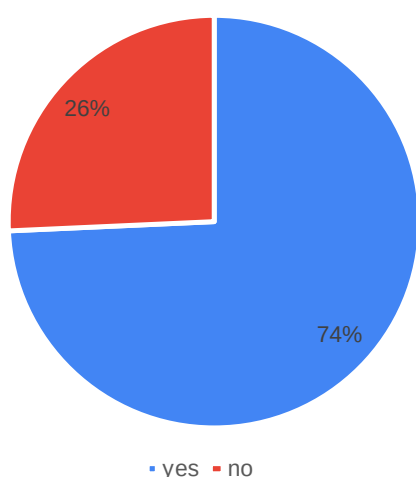


Figure 3-20 Answers on the existence of procedures to recognize or update existing qualification schemes

Are there specific procedures in your country / region that allow the recognition of new qualifications or the updating of existing ones?

The vast majority of the answers (74%) have been positive. This information probably refers to the possibility of self-certifying the worker/professional skills through independent certification bodies, operating in accordance with ISO / IEC 17024.

Also, the analysis of the direct interviews depicts the same overall trend; some differences exist when considering the specific country and context. In Spain, for instance, the Green Building Council (GBCe) is dealing with this topic but, because of the continuous evolution of the construction sector and

of the regulatory procedures, the certifications must be updated almost every year.

To implement the updates, GBCe has a group of experts in each of the fields related to sustainability: these specialists propose modifications of criteria and they provide feedbacks on the need for modifications.

In this sense, the regulations are always used as the foundations on which to establish improvements, and also influence market demand. All the new information emerging in relation to the issue of sustainability is then consequently introduced in training programmes.

In France exists a similar procedure, managed by the Répertoire national des certifications professionnelles (RNCP) or by the CQP register. Nonetheless, when administrations ask for technicians with exhaustive knowledge in the field of sustainability through selection processes or tenders, or sustainability experts to be part of specific project teams, there is no approved figure, recognized or regulated in this field.

Another training's expert interviewed described the Regional Repertory of training qualifications and standards", used in the Italian Region Piemonte: this system is linked with the national Atlas of work and qualifications, which contains, in a structured way, the competences of all qualifications. Through a specific procedure, interested parties (companies, social and employer parties, bilateral bodies, training agencies, etc.) can submit a request for creation and or revision of complete professional qualification or parts of qualification, within the Regional Repertory.¹⁹

Is there the possibility of acquiring a formal qualification (issued by a certified body or an institution responsible for this activity) by certifying work experience in the field of energy sustainability?

For this question, the spread between the answers has been smaller: 57% of the sample answered positively whilst 43% affirmed that it's not possible to acquire a formal qualification by certifying work experience.

This result is in line with what has been detected with professionals and workers being asked whether "there's a possibility of acquiring formal qualifications by demonstrating work experience in the field of energy sustainability or not²⁰".

All the respondents to the direct interviews, instead, affirmed that there is not such procedure to certify work experience to acquire a certification: in fact, "work experience in the field of sustainability is not valued; courses, exams and internships must be completed. There is no possibility to make a posteriori validations".

¹⁹ https://eacea.ec.europa.eu/national-policies/eurydice/italia/validation-non-formal-and-informal-learning_it

²⁰ See previous §.

In Italy, and specifically in Piemonte Region, a procedure to acquire a qualification by demonstrating on-field experience does exist but it requires the candidate to pass an exam (without attending a class): the applicant can issue a request to any accredited agency to ask for the mapping and validation of skills acquired with a course that did not issue a title/qualification or gained in a work experience or otherwise (competence acquired in formal, non-formal or informal contexts).

The skills owned by the individual are mapped and validated through an interview and the presentation of proving documentation. The time frame considered for mapping the competences is normally 3 years. If, at the end of this mapping and certification procedure, the skills possessed by the individual match all the skills required for a specific professional profile, the individual can be directly admitted to take the exam that issues the corresponding qualification, obtaining a Professional Qualification Certificate. If the skills mapping identifies any shortcomings, the individual must fill this gap before being admitted to the exam by attending a specific short course/part of a course.

In your country / region, is there the possibility of acquiring a formal qualification (issued by a certification body or an accredited institution) by demonstrating that you have participated in a training course that does not involve the issue of a certification? If YES, which one?

The 79% of the sample answered negatively whilst those confirming the possibility listed the following alternatives: *RGE (Reconnu Garant de l'Environnement) / Recognized as Guarantor of the Environment, Knowledge of certifications, Independent speakers and certificates of short (informal) training, buildings energy certification, Professional certification based on the UNE-EN ISO/IEC 17024:2012 and GBCe – passivhaus.*

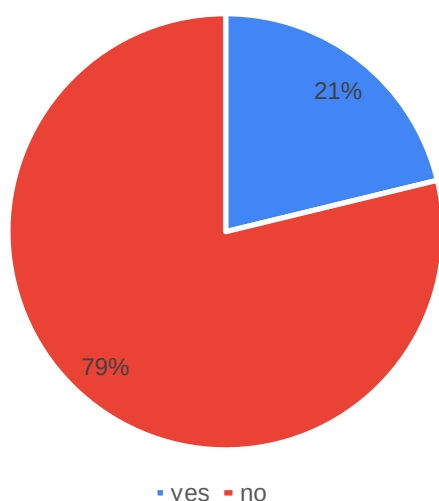
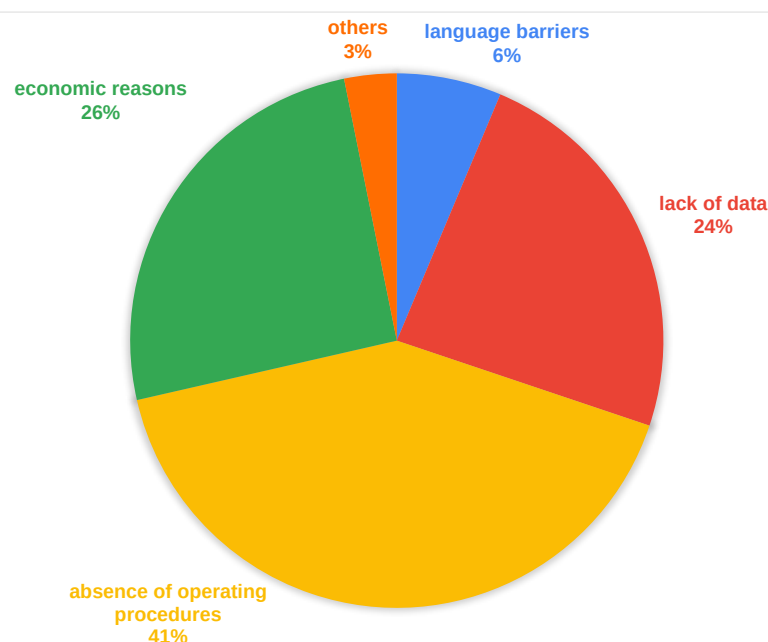


Figure 3-21 Answers on the possibility to acquire formal qualification by participating to training not leading to certification (from the point of view of training experts)

The same percentage has been reached by the negative answers expressed in the direct interviews: 78% of the respondents affirmed that it is not possible (or extremely difficult) to acquire a qualification by demonstrating the participation to a training course not leading to an official certification. In fact, "the way in which the contents are organized is not the same: for example, the qualification courses of green stamps mostly concern the methodology, the dynamics and the tools with which the worker/professional will be requested to work".

Indicate the reasons that hinder the recognition of qualifications on energy sustainability in order of importance.

With the possibility to select more than one answer, the option *Absence of operating*



procedures that allow recognition of qualifications has an incidence of 41%, whilst *Language barriers* represent the less selected options (6%). Amongst the option 'Others' there's the perception that the market does not recognise the qualifications.

The results of the direct interviews highlight that the main obstacle in acquiring an energy sustainability qualification is the absence of a single procedure for all professionals and workers categories. At the moment there are international sustainability certification protocols that have

Figure 3-22 Reasons that hinder the recognition of energy sustainability qualifications

been released in geographical areas outside Europe (for example, the Leed and Well protocols) which in many cases have procedures that are poorly suited to European buildings or that are extremely strict and difficult to respect. Another aspect emerged is the lack of time as well as the economic reasons. In the first case, as previously reported, the result could be justified by the amount of information to be acquired during the update courses; this aspect leads directly to the consequence of the second result, linked to the cost of the courses (consisting of many hours of training) and to the cost of the certification provided by the Certification Bodies. Often, these certifications or exams require a remarkable monetary investment.

Instead, the reasons indicated by the interviewed people (in order of relevance) are: economic reasons, absence of operating procedures and language barriers.

One of the Spanish respondents stated that “[the main problem is] the lack of a global recognition system that comprehends all procedures; at the moment the qualification system is a world without connections, in this sense the profile of the energy sustainability expert/technician would be a good answer.

This profile would need recognition from the public administration, or through a public-private body, for example non-profit associations, that can establish agreements with public administrations at the municipal, regional or central level”.

Conclusion

The construction sector is a strategic field in the EU mission towards sustainability: we have to think about its impact on energy consumptions and the quantity of waste materials to be disposed.²¹ This relevance requires a constant effort in the innovation and improvement of construction sector's sustainability; moreover, the legislative references and norms should guarantee, not only this innovation but also the connection of national contexts to the European dimension.

In recent years, actions aimed at improving the professional's training quality in the energy sector of buildings have led to a progressive change of strategy, shifting the focus towards increasingly specific skills. This type of approach has been promoted both by European policy and by international projects such as BUILD-UP Skills Initiative, PROF / TRAC Project, CESBA network and EU Level (S) Framework.

The TRAIN4SUSTAIN project was designed with the objective: to stimulate the demand for skilled construction sector professionals. This ambitious aim will be tackled through raising acceptance of regional and national qualifications and skills on the EU construction market. To this end, comparability of national qualifications and sustainable energy skills must be guaranteed and facilitated; in order to do that, Work Package 2 of TRAIN4SUSTAIN will develop an EU-wide harmonised qualification schemes and skills standard. The activities described in this deliverable have been conceived as first step of this process, to identify the state of art and foundations for the future tasks.

The first phase of task 2.1 was the collection of all the qualification schemes and training courses, related to energy efficiency and sustainability of buildings, available in the countries of the consortium and at international level. In this phase, 106 schemes were collected and divided among 3 target groups: Design and Planning (DP), Building Construction Worker (BCW) and Building Maintenance and Management (BMM). The first screening highlighted that most of the schemes considered are referred to Design and Planning group and the connected training courses are administered through a theoretical rather than practical teaching. Another important aspect desumed by this analysis, is related to the fact that for at least 2 out of 3 schemes the legislative framework and the reference to an official register for the specific qualification have not been indicated (or not discovered in publicly available sources). The absence of reference to an official qualification register reflects the core concept of the project: in order to ease the recognition of qualification schemes (and connected skills, knowledges and competencies), the creation of an international register of experts and qualified workers is absolutely relevant. The tools developed in TRAIN4SUSTAIN project would allow to compare professionals, not only at a national but also at European and even international level.

²¹ https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/eu-bso_en?redir=1

The second chapter of this deliverable is committed to the analysis of the distribution of the thematic areas identified. In particular, T4S has taken into consideration the same field of expertise of the PROF / TRAC project, adding two categories in order to improve and expand the professional skills of the involved profiles. In this second phase of the analysis, the objective was the identification of the most common and also the least available skills and expertises provided by each qualification scheme or training programme. This part of the analysis is fundamental for the next phase of the project: the identification of a certified professional qualification profile, expert in sustainability and energy efficiency.

The analysis conducted on the qualification/training schemes provided by partners, highlighted the low level of competence of the target groups considered with reference to the two introduced thematic areas: Neighbourhood solutions and Innovative Digital Skills. The possible explanation for this result is the fact that the new areas of expertise included in the two additional fields have started to be considered and examined only in recent years. It is very important to insist on these competences and to develop adequate training programmes and qualification schemes, because these areas of expertise are the driver for change and innovation.

Dealing specifically with the areas of expertise of Innovative and digital skills field, it would be necessary to transmit these competences to the whole construction chain: suppliers, architects, engineers, construction workers and system technicians, manufacturers, clients, investors and users. All these actors should improve and integrate innovative tools and digital skills in the activities of analysis, management and communication of data and information, through all the phases of the construction process.

In the third chapter the results of direct interviews and on-line survey were presented: the aim of this activity is to investigate the state of the art in the countries involved and the understanding of the sensitivity of the various actors and groups addressed by the project. One of the most important fact, which should be considered for the purposes of this project, concerns the obstacles related to obtaining a specific qualification: lack of time, economic issues and too long training courses etc. Another aspect to stress is the difference between supply and demand of the professional qualifications on the market: the analysis highlighted that for some areas of expertise this difference was much consistent than in other cases. For example, the category Certification protocols and sustainability of buildings presented a high level of availability even if the demand is not so significant. For other categories such as Energy performance of the building envelope and Building diseases diagnosis, the demand is much higher than the availability.

The compilation of this document was complex as the situation in each individual state analyzed is extremely heterogeneous. Some of the problems could be attributed to the different national and regional policies but also to the different levels of trainings associated to each qualification. The high number of schemes collected and reported

in the appendix of the deliverable confers the idea of the difficulty in developing a reasoned analysis that could be common on several levels for all the countries involved in the project.

The results of this study should raise awareness that the availability of a rich heritage of skills is the prerequisite for improving the quality of building design in the energy and sustainability fields. The lack of skills or a marked difference between offer and demand increases the risk for some categories of being excluded from these market's dynamics and at the same time hinders the virtuous conjunction between technological progress and development.

Moreover, in a global society which is now based above all on knowledge and innovation, the lack of skills and know-how can lead to lower overall competitiveness at a global level.

The findings point towards a "framework" to recognise and compare the qualification schemes (regardless of the countries where that have been obtained) shall be applicable and practical, the ultimate scope of TRAIN4SUSTAIN project to fulfil.

ANNEX 1: QUALIFICATION SCHEMES

1 ANNEX – PROFESSIONAL QUALIFICATIONS OF FRANCE

France - code:		F01
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*		Building Energy Performance Team Leader
EQF Level, if any		4
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)		Qualifying training on the subject of energy transition.; Gesture practice on technical platforms.; Be operational in a promising field.; Define and estimate energy performance work on new and old buildings.; Plan and organize the site.; Carry out and supervise the energy performance work of the building.
TARGET GROUPS ADDRESSED*		Job seekers, employees, young apprentices
DIDACTIC METHOD (classes, workshops, internships)		Theoretical classes; Gesture practice on technical platforms; Company internship
DURATION OF COURSE		640 h (18 weeks) at school and 610 h (18 weeks) in the company
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		EQF 3 in building (mason, carpenter ...) or experience
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		Level IV Low Consumption Building Technician Certification (high school graduate) registered with RNCP (National Register of Professional Certifications)
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*		Institut National de l'Energie Solaire - ; Plateforme Formation & Évaluation ; Bâtiment Hélios - ; 60 avenue Lac Léman - ; Savoie Technolac BP 258 - ; 73375 LE BOURGET-DU-LAC CEDEX ; Tél. : 04 79 26 44 30 - ; Fax : +33 (0)4 79 25 36 90 - ; E-mail : formation@ines-solaire.org - ; Site : www.ines-solaire.org
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	BUILDING DIAGNOSIS
Knowledge & skills	Reading of plans and diagrams of details; Bioclimatic construction; Thermal regulations and principles; Knowledge of thermal and sound insulation materials
Units of Learning Outcome 2 (ULO)	DEFINITION AND MONITORING OF WORKS
Knowledge & skills	Planning and organization methodology; Study price; Building documents and actors
Units of Learning Outcome 3 (ULO)	CONDUCTING AND CARRYING OUT ENERGY PERFORMANCE WORKS ON THE BUILDING ENVELOPE
Knowledge & skills	Structural work and masonry constructions; Frame, wood constructions and insulation; Indoor / outdoor / distributed thermal insulation; Air tightness; Approach using biobased materials; Exterior doors and windows
Units of Learning Outcome 4 (ULO)	EQUIPMENT INTEGRATION
Knowledge & skills	Electrical and home automation networks; Heating / renewable energy and ventilation networks; Water networks
Units of Learning Outcome 5 (ULO)	SUPERVISED PROJECT
Knowledge & skills	Study of a real project: renovation of a building
Units of Learning Outcome 6 (ULO)	INFORMATION AND COMMUNICATION
Knowledge & skills	Communication techniques
Units of Learning Outcome 7 (ULO)	ENVIRONMENT AND SAFETY
Knowledge & skills	Environmental management of a construction operation; Site security
Units of Learning Outcome 8 (ULO)	PROFESSIONAL PROJECT AND EDUCATIONAL SUPPORT
Knowledge & skills	Reception, follow-up and review meetings, oral test; Applied mathematics; Refresher in French

France - code:	 F02
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Sustainable energy and building project manager
EQF Level, if any	6
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Have a global vision of the energy and sustainable building sector.; Recommend technical solutions to reduce energy consumption.; Use renewable energy.; Reduce the impact of the building on the environment during the construction phase - construction / renovation, use and; end of life.; Raise awareness of the energy transition by supporting the projects of different actors (individuals, communities, companies, etc.) and at different scales (building, neighborhood, territory ...); https://www.asder.asso.fr/je-recherche-une-formation/formations-certifiantes/formation-charge-de-projet-energie-batiment-durables/
TARGET GROUPS ADDRESSED*	Employees in continuous training or retraining.; Jobseekers.; Apprentices
DIDACTIC METHOD (classes, workshops, internships)	Theoretical contributions and practical situations (tutorials); Practical work on technical platforms and business software.; Tutored projects on a real case.; Work placement of at least 5 months.
DURATION OF COURSE	12 months. 6 months of lessons and 6 months of internship in a company
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Preferably, EQF V level and / or professional experience.; Strong motivation, professional project built
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Level VI certification title registered in the National Directory of Professional Certification
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	Association Savoyarde; pour le Développement; des Énergies Renouvelables; Maison des énergies; 124 rue du Bon Vent - BP 99 499; 73 094 Chambéry cedex 9; tél. 04 79 85 88 50; fax 04 79 33 24 64; formation@asder.asso.fr
SPONSORING INSTITUTION (keep track of the source of information)	

Units of Learning Outcome 1 (ULO)	Sustainable development issues and energy context.
Knowledge & skills	Comprehensive approach to the context and energy issues. Presentation of actors, systems, political and regulatory developments.; Reflection on solutions for sustainable development.; NégaWatt approach, eco-neighborhood, eco-consumption, eco-mobility.

Units of Learning Outcome 2 (ULO)	Eco construction and environmental quality of buildings;
Knowledge & skills	Bioclimatic design. HQE approach and certification. Construction and insulation materials.; physical characteristics, ecological and health impacts, implementation techniques, costs.; The different construction systems (masonry, concrete, wood, wood-straw). Administrative and regulatory context for eco materials. Gray energy and life cycle analysis applied to buildings.; Thermal and ecological rehabilitation of the building. Visit of realizations and practical work on model.

Units of Learning Outcome 3 (ULO)	Building thermics and energy management;
Knowledge & skills	Building thermics; physical quantities, methodology of the thermal balance, thermic regulation.; Performance labels. Energy performance diagnostic. Efficient building techniques (envelope and equipment). Air tightness, infiltrimetry, thermography. The different approaches for summer comfort. Site management for a high-performance building. Presentation and practice of business software

Units of Learning Outcome 4 (ULO)	Energy efficiency of equipment and indoor air quality;
Knowledge & skills	Energy optimization of systems for high-performance buildings (heat production, cooling, DHW, ventilation, etc.); The different existing heating systems. The principles of; heating regulations. Control of the Demand for Electricity in the building. Indoor air quality and ventilation. Heat pumps.

Units of Learning Outcome 5 (ULO)	Energy recovery from biomass:
Knowledge & skills	The wood industry. Wood fuels. Materials and technologies: independent devices, individual automatic boilers, collective boilers. Installation sizing, opportunity analyzes and feasibility studies. Wood energy and air quality. Methanization. Heating networks.
Units of Learning Outcome 6 (ULO)	Solar thermal energy:
Knowledge & skills	The different solar collectors: basic technological principles, efficiency.; Sizing software. Visit of installations. Practical installation work.
Units of Learning Outcome 7 (ULO)	Renewable electricity:
Knowledge & skills	Photovoltaic solar energy: basic principles, technologies, systems, sizing, costs, market, regulations, setting up of projects, connection to the network. Presentation of software. Wind power, small hydro, cogeneration.
Units of Learning Outcome 8 (ULO)	Territories and energy:
Knowledge & skills	Competences and means of local communities. *; Territorial energy procedures; Territorial Energy Climate Plan and TEPOS approaches. Sustainable building strategies for public heritage and territories. The PLU and the consideration of the environment. Towards an urbanism of sustainable projects. The energy approach in the municipalities. Public lighting
Units of Learning Outcome 9 (ULO)	Communication
Knowledge & skills	Oral and written communication. Change management.; Summaries on a topic of energy and sustainable building. Upgrading in grammar and spelling. Writing reports with an appropriate vocabulary.
Units of Learning Outcome 10 (ULO)	Research project
Knowledge & skills	Tutored project (sketch on real building, study phases).
Units of Learning Outcome 11 (ULO)	Professional project and educational support
Knowledge & skills	Work on everyone's professional project. Job search strategies. Participation in trade shows. Weekly follow-up meetings and reviews. Defense of practical training and assessment of the training.
Units of Learning Outcome 12 (ULO)	Project management
Knowledge & skills	Project management methodology. Economic analysis of renewable energy projects. New digital collaborative tools.
Units of Learning Outcome 13 (ULO)	Fluid specialization (optional module):
Knowledge & skills	Drawing of networks on 2D plan and in 3D model (BIM).; Sizing of hydraulic and aeruic networks, fire safety. Ventilation systems / AHU. Air conditioner.; Heat / cold emitters. Installations of collective / tertiary buildings. BMS regulation and measurements.; Tutored project (sketch on real building, study phases).
Units of Learning Outcome 14 (ULO)	Practical internship
Knowledge & skills	Internship: Realization of professional projects.

France - code:		F03
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Specialized Master® Project Management; Construction - Sustainable Construction	
EQF Level, if any	7	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Manage construction projects over the entire life cycle by ensuring technical, economic, legal; and regulatory acceptance (standards and labels), energy and environmental efficiency.; Manage a sustainable or intelligent construction or renovation operation.; Reflect on the scale of the building and the scale of urban planning.; Leading multicultural men and teams; ; https://catalogue.cesi.fr/mastere-specialise-management-de-projets-de-construction-bim-1602302-2020/ ; ;	
TARGET GROUPS ADDRESSED*	Company employees, job seekers; students	
DIDACTIC METHOD (classes, workshops, internships)	Initial training, Apprenticeship, Training; continuous, e-learning, Apprenticeship.; Alternating one week in center and 3 weeks in business.	
DURATION OF COURSE	1 year	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Candidates holding an engineering degree or EQF level 7 or equivalent.; and more, EQF level 6 with 3 years of professional experience.; Possible derogation on file	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	CESI; https://www.cesi.fr/	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Project management
Knowledge & skills	Project management; Culture project

Units of Learning Outcome 2 (ULO)	Construction and BIM project management;
Knowledge & skills	Project management and BIM; Specificities of construction project management; Innovations and new approaches in construction project management

Units of Learning Outcome 3 (ULO)	Management of men in transitions;
Knowledge & skills	Team management; Change management

Units of Learning Outcome 4 (ULO)	Strategic and economic management of projects and companies;
Knowledge & skills	Budget and Amortization; Indicators and dashboards; Financial and extra financial performance

Units of Learning Outcome 5 (ULO)	Legal and construction law;
Knowledge & skills	Responsibilities, guarantees and insurance; Law and financial arrangement of contracts (in France and abroad); Town and country planning; Normative context of BIM in France and abroad

Units of Learning Outcome 6 (ULO)	Energy and building envelope;
Knowledge & skills	Constructive systems; Thermal and RT simulations; Choice, sizing and installation of Equipment; Financing of energy works (renovation, etc.)

Units of Learning Outcome 7 (ULO)	Renewable energies and energy production / distribution;
Knowledge & skills	Energy at the urban and eco-neighbourhood scale; Renewable and recovered energy; Energy distribution networks; Financial strategy

Units of Learning Outcome 8 (ULO)	Environmental performance;
Knowledge & skills	Materials and eco-materials; Environmental analysis; Water management, waste recovery; Certifications and labels

Units of Learning Outcome 9 (ULO)	Smart construction;
Knowledge & skills	Introduction to the smart city, smart building; Design and construction of a smart building; Operation and maintenance; BIM contribution

France - code:		F04
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Specialized Master® Green buildings-; Green buildings (GBBV)	
EQF Level , if any	8	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Aimed at training multidisciplinary experts capable of advancing the overall performance of constructions, this specialized master's degree, designed and carried out by ENTPE, is accredited by the Conférence des Grandes Écoles (CGE).; ; https://www.entpe.fr/abbv ;	
TARGET GROUPS ADDRESSED*	For young graduates, holders of a Masters degree or equivalent (engineers, architects, town planners, etc.), concerned with gaining cutting-edge expertise in the field of sustainable and responsible construction.; For construction professionals with the ambition to boost their professional career in a field in very strong evolution.; For people in professional reorientation having a scientific and technical culture.	
DIDACTIC METHOD (classes, workshops, internships)	Classes and internship	
DURATION OF COURSE		
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	EQF level 6 or 7	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	ENTPE; gbbv@entpe.fr	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	SCIENCES TECHNOLOGIES AND METHODS;
Knowledge & skills	TPE - Technologies for the Energy Performance of Buildings; 1. Innovative materials; 2. Multi-functional envelope components; 3. Low-need energy technologies; 4. Integration of renewable energies into the building; ; MDB - Dynamic Building Modeling; 1. Digital dynamic simulation tools; 2. Digital model of the building; 3. Regulatory methods; ; PCS - Management and Control of the Built System; 1. Multi-criteria management and advanced management; 2. Measurements and evaluation; ; CQC - Construction Quality Control; 1. Quality control tools; 2. Quality control; ; QSA - Health Quality and Accessibility; 1. Accessibility; 2. Building and health

Units of Learning Outcome 2 (ULO)	Environments Actors Tools;
Knowledge & skills	EVD - Urban environment and Sustainable City; 1. Eco-districts and sustainable cities; 2. Urban environment; ; MPE - Environmental Performance Modeling; 1. Environmental assessment; 2. Labels and certifications; 3. Normative approaches; ; CMI - Complexity and Real Estate Management; 1. Treatment of complexity; 2. Asset management; ; BAU - Actors and Uses Buildings; 1. Professions, roles and actor games; 2. Uses, behaviors and ways of living; 3. Concurrent engineering; 4. Security; ; JFI - Industrial Financial Legal Tools; 1. Financial engineering; 2. Legal tools for installation and operation; 3. Industrial and green industries; 4. Corporate social responsibility

Units of Learning Outcome 3 (ULO)	Jobs Structures Applications;
Knowledge & skills	IPS - Professional and Scientific Institutional Context; 1. Technical visits; 2. Specialized conferences; 3. Study trip; ; PMA - Implementation Projects; 1. STM project; 2. EAO project; ; Two business-type projects carried out in each of the two teaching units STM and EAO.; allow trainees to apply, in stages, their knowledge of a real operation and; to progressively evolve towards the exercise of a responsibility function in the field; construction.; These projects aim to mobilize individual and collective skills in professional situations.; mobilizable technologies, analysis methods and tools, teamwork, project management.; written and oral communication. One of the two projects gives rise to a written and oral production in; English.

Units of Learning Outcome 4 (ULO)	Application of Skills
Knowledge & skills	EPF - Peripheral Elements in Training; 1. Introductory seminar on the issues; training (1 day); 2. Conclusive seminar on perspectives; very low impact construction (1 day); 3. Evaluations; ; PME - Preparation of the Mission in Enterprise (INTERNSHIP); 1. Design; 2. Validation; 3. Organization

Units of Learning Outcome 5 (ULO)	Business Mission;
Knowledge & skills	Major phase for professional integration, the company mission (internship), lasting 6 months full-time, meets a concrete need of the company combining reflection and operational implementation.; It constitutes the field of the professional thesis and represents the culmination of the training. The professional thesis, giving rise to a written report and a defense before a jury, allows the trainee to demonstrate, in addition to the acquisition of the skills targeted by the specialized master's degree, the appropriation of a process of progress in a professional posture.

France - code:	 F05
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Professional title Mason eco-construction
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	- Identify "local traditional materials" (cut stone, dry stone, wood, earth, adobe, brick ...); - Understand green building in the choice of construction processes and products; - Build masonry and local traditional material; - Restore masonry in local traditional material; - Make coatings and finishing elements, including in old buildings; - Realize reinforced concrete structures, traditional or in old buildings; - Create slabs and floors; ; https://www1.ac-lyon.fr/greta/formation/titre-professionnel-macon-eco-construction?id=17173 ;
TARGET GROUPS ADDRESSED*	For all
DIDACTIC METHOD (classes, workshops, internships)	- The training consists of 4 modules, supplemented by an integration period and internship periods in companies.; - Integration period: Welcome, presentation of training objectives, knowledge of the professional environment, awareness of sustainable development, adaptation of the training course.; ; Terms : ; Daily collective and individualise classes; Alternating possible; Face-to-face training
DURATION OF COURSE	1 year; ; The duration of training is given as an indication, it can vary according to the positioning and the status of the trainee (ex. Work-study contract)
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	For a good adaptation in training, it is desirable to know how to read, write and count.; Desired skills: resistance to sustained efforts and bad weather, ability to work at heights, sociability, autonomy
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	GRETA CFA DE LA LOIRE; 22 rue Louis Soulié CS50650; 42042 Saint Etienne CEDEX 1; Tel : 04 77 32 48 02; Fax : 04 77 32 37 16; greta.loire@ac-lyon.fr
SPONSORING INSTITUTION (keep track of the source of information)	

Units of Learning Outcome 1 (ULO)	Module 1: Building masonry structures, including local materials;
Knowledge & skills	Carry out the assembly and disassembly of a foot scaffolding; Build common masonry mortared in mortar and local traditional material; Build common masonry with thin joints; Restore masonry in local traditional material, create openings in existing walls and deconstruct parts of the work

Units of Learning Outcome 2 (ULO)	Module 2: Making coatings and finishing elements;
Knowledge & skills	Finishing elements including in old buildings; Set up prefabricated elements industrially; Manually make monolayer plasters, in traditional mortar, joining masonry; Make traditional hydraulic plasters

Units of Learning Outcome 3 (ULO)	Module 3: Realize reinforced concrete structures formwork in traditional;
Knowledge & skills	Formwork in traditional wood and portable elements; Put in place the reinforcements of a reinforced concrete structure; Pouring concrete from a traditional reinforced coffered concrete structure

Units of Learning Outcome 4 (ULO)	Module 4: Producing slabs and floors of the slab type;
Knowledge & skills	Laying a slab joist floor; Lay pipes under paving; Use paving concrete and floors and perform surface aspects; Put in place the reinforcement of a floor or paving

France - code:		F06
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Energy and climate systems maintenance technician	
EQF Level, if any	4	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	At the end of the training, the technician should be able to:; o Perform preventive and corrective maintenance of the installations; o Master the documentary technique, from reading the plan to taking charge of the installation file; o Mastering the production, distribution and dissipation systems of energy, taking responsibility in the technical diagnosis; o Communicate with customers and other trades; o Participate in the definition of the expression of the client's needs to suggest different solutions; o Explain to the customer the use of the installation; o Detect, manage anomalies and issue summaries; ; https://www1.ac-lyon.fr/greta/formation/bac-pro-technicienne-maintenance-systemes-energetiques-et-climatiques?id=14629 ;	
TARGET GROUPS ADDRESSED*	For all	
DIDACTIC METHOD (classes, workshops, internships)	- Terms :; Daily collective and individualise classes; Alternating possible; Face-to-face training	
DURATION OF COURSE	1 year	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Have been admitted to high school; Hold an EQF 3 level diploma in the energy or electrical engineering sector; Have three years of professional experience in this field	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	GRETA CFA DE LA LOIRE; 22 rue Louis Soulié CS50650; 42042 Saint Etienne CEDEX 1; Tel : 04 77 32 48 02; Fax : 04 77 32 37 16; greta.loire@ac-lyon.fr	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Power supply
Knowledge & skills	Wire the control box, adjust and troubleshoot an oil burner

Units of Learning Outcome 2 (ULO)	Gas burner
Knowledge & skills	Master the different safety elements of a gas burner, wire, start up, start up, adjust and troubleshoot a gas burner

Units of Learning Outcome 3 (ULO)	Combustion
Knowledge & skills	Master the characteristics, control and analyze combustion

Units of Learning Outcome 4 (ULO)	Hydraulics
Knowledge & skills	Dimension and select a pump and the different types of valves, control the adjustment of flow rates, balance and troubleshoot a hydraulic network

Units of Learning Outcome 5 (ULO)	Thermal
Knowledge & skills	Carry out a thermal balance, dimension and choose the different organs of a heat production and an expansion tank, adjust an expansion tank, fill an installation and check the pressure

Units of Learning Outcome 6 (ULO)	Electricity and regulation
Knowledge & skills	Modify an electrical diagram, size and choose the different electrical equipment, wire these organs, troubleshoot and regulate regulation, Electrical authorizations

Units of Learning Outcome 7 (ULO)	Cold
Knowledge & skills	Dimension and choose the different elements of a cold production, make, fill and commission an installation, troubleshoot and adjust a cold production, commission the different air conditioning

Units of Learning Outcome 8 (ULO)	Air treatment;
Knowledge & skills	Identify the different air changes in an air handling unit, size and choose the different air handling systems, set up the systems of an air handling unit

Units of Learning Outcome 9 (ULO)	Water treatment
Knowledge & skills	size and choose disinfection devices, identify measurement and control devices

Units of Learning Outcome 10 (ULO)	General areas;
Knowledge & skills	French, history-geography, mathematics physical sciences, hygiene prevention-security, English

France - code:		F07
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Professional qualification certificate; installer / maintainer in solar thermal and photovoltaic systems	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Master the installation and maintenance of systems; photovoltaic and thermal solar;; • diagnose installations in buildings (studies prior to construction); • ensure achievements up to the closing and after-sales phases and then maintenance; • connect the electrical elements and the pipes; >> Install thermal and photovoltaic solar panels in the collective, tertiary or private homes; ; https://www.ines-solaire.org/wp-content/uploads/2019/12/fiche-catalogue- cqp-installateur-maiteneur-en-systmes-solaires-th-pv.pdf ;	
TARGET GROUPS ADDRESSED*	Any public with technical prerequisites and / or professional experience in plumbing / heating and electricity	
DIDACTIC METHOD (classes, workshops, internships)	CONTINUING EDUCATION OR ALTERNATE	
DURATION OF COURSE	IN CONTINUING EDUCATION: 4 months (525 hours) of center training and 4 months (525 hours) of practice in business; >> ALTERNATE: 14 month professionalization contract alternating periods of training and periods of work (70% of time in business, 30% of time in training)	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	technical prerequisites and / or professional experience in plumbing / heating and electricity	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	INES FORMATION; Sophie NOIRET; Renseignements administratif et financier; sophie.noiret@ines-solaire.org; Tel : 04 79 26 44 30; Parc Technologique de Savoie Technolac; 60 Avenue Lac Léman; 73370 Le Bourget du Lac; www.ines-solaire.org	
SPONSORING INSTITUTION (keep track of the source of information)		
Units of Learning Outcome 1 (ULO)	>> Bases on renewable energies;	
Knowledge & skills	solar thermal market, solar deposit,...	
Units of Learning Outcome 2 (ULO)	>> Working at height;	
Knowledge & skills	intervention, individual and collective protective equipment, practice, etc.	
Units of Learning Outcome 3 (ULO)	>> Galvanized cover;	
Knowledge & skills	roofing and roofing elements, water flow and snow and wind constraints, waterproofing of the cover, practical, ...	
Units of Learning Outcome 4 (ULO)	>> QUALIPB BAT (certification)	
Knowledge & skills	integration into the building according to the Quali'ENT standard	
Units of Learning Outcome 5 (ULO)	>> QUALIPV ELEC (certification)	
Knowledge & skills	connection to the network according to the Quali'EnR standard	
Units of Learning Outcome 6 (ULO)	>> Maintenance of photovoltaic installations	
Knowledge & skills	inventory, network connections, analysis of performance losses, systems architecture, maintenance actions (preventive and curative)	
Units of Learning Outcome 7 (ULO)	>> General thermics	
Knowledge & skills	basic principles, practical,...	
Units of Learning Outcome 8 (ULO)	>> General hydraulics	
Knowledge & skills	basic principles, practical,...	
Units of Learning Outcome 9 (ULO)	>> QUALISOL CESI (Individual Solar Water Heater certification)	
Knowledge & skills	according to the Quality, Renewable, Practical, Test standard	
Units of Learning Outcome 10 (ULO)	>> Energy performance of the building	
Knowledge & skills	thermal balance, insulation, airtightness, practical	

France - code:		F08
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Bim in the energy transition of buildings	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	- Build sustainable buildings using BIM; - Understand the energy and environmental simulation tools; - Successfully complete an energy and environmental calculation process on a BIM model; ; https://www.ines-solaire.org/formation/!formation/le-bim-dans-la-transition-energetique-du-batiment/	
TARGET GROUPS ADDRESSED*	o Design offices; o Architects; o Anyone interested in BIM technology and wishing to improve the energy and environmental performance of the building	
DIDACTIC METHOD (classes, workshops, internships)	o Presentations;; o Case studies; o Practical work	
DURATION OF COURSE	21 hours over 3 days	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	o Be a player in construction; o Know the principle of BIM; o Know the energy bases of the building	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	INES Formation & Évaluation ; Bâtiment Hélios – 60 avenue du lac Léman ; 73375 LE BOURGET-DU-LAC CEDEX	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	1. PRESENTATION OF INES - National Institute of Solar Energy
Knowledge & skills	

Units of Learning Outcome 2 (ULO)	2. THE DIGITAL TRANSITION IN THE BUILDING;
Knowledge & skills	o Energy context and technological evolution; o Introduction to BIM; o BIM management; o Practical work: realization of the BIM model

Units of Learning Outcome 3 (ULO)	3. BIM AT THE SERVICE OF THE ENERGY EFFICIENCY OF BUILDINGS
Knowledge & skills	o Thermal reminders; o Experiment E + C-; o From BIM to BEM (Building Energy Modeling); o Practical work: Study the thermal behavior from the BIM model

Units of Learning Outcome 4 (ULO)	4. BIM AT THE SERVICE OF THE BUILDING LIFE CYCLE ANALYSIS
Knowledge & skills	o Building life cycle analysis; o BIM in building lifecycle analysis; o Practical work: Analyze the building life cycle from the BEM model

Units of Learning Outcome 5 (ULO)	5. TRAINING REPORT
Knowledge & skills	

France - code:	 F09
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Qualification: Engineering of production facilities using biomass in combustion
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Installations for the production of energy, whatever its form (electrical, thermal, refrigeration) or boiler room supplying a heating network, intended for collective housing, tertiary or industry, from biomass: forest chips, related to the wood industries, end-of-life wood products, agricultural by-products (straw, grape marc, sunflower hull, ...). Excluded: UIOM (household waste incineration unit), biogas production installations.; ; Included are the control, command and management facilities for the energy produced as well as all of the utilities required.; ; The engineering service includes taking into account the following aspects: - Thermal and hydraulic dimensioning of the installation; - Supply and storage; - Air quality; - Economic analysis (construction costs, operating costs, overall profitability of the project).; ; https://www.opqibj.com/nomenclature-fiche.php?id=2008 ;
TARGET GROUPS ADDRESSED*	Engineers
DIDACTIC METHOD (classes, workshops, internships)	The technical referents are thermicians, having to justify an initial qualifying or continuous training on the production of energy from biomass.
DURATION OF COURSE	Minimum 3 days
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	3 years
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	OPQIBJ; Par courrier : 104, rue Réaumur 75002 Paris; Par téléphone : 01.55.34.96.30;
SPONSORING INSTITUTION (keep track of the source of information)	

Units of Learning Outcome 1 (ULO)	Plan;
Knowledge & skills	Identify the steps of a biomass energy project.

Units of Learning Outcome 2 (ULO)	Dimension;
Knowledge & skills	Know how to thermally size a wood boiler room and identify the players.

Units of Learning Outcome 3 (ULO)	Supply;
Knowledge & skills	Evaluate supply needs and fuel / boiler adequacy.; Know the modes of supply and assess the environmental impacts and identify the actors

Units of Learning Outcome 4 (ULO)	Documents;
Knowledge & skills	Know how to write a supply specification and analyze the offers.; To know how to write a report in an educational way.

Units of Learning Outcome 5 (ULO)	Vigilant point;
Knowledge & skills	Know how to assess the environmental impacts of a project on air quality and identify the actors.; Identify the technical vigilance points of a wood boiler and know the operating parameters and the associated actors.

Units of Learning Outcome 6 (ULO)	Advice and Analysis;
Knowledge & skills	Know how to advise the client on the legal and financial set-up of his project.; Know how to analyze the profitability of a project and identify the actors; Know how to convince the client.

France - code:		F10
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Maintenance of thermal installations (technicality; current)	
EQF Level , if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Maintenance, operation or management of thermal or air conditioning equipment by a company: • having its own qualified staff for supervision and execution, • owning or renting the appropriate equipment for the execution of contracts.; ; https://1001signes.qualiteconstruction.com/signer/558 ;	
TARGET GROUPS ADDRESSED*	Companies in the construction sector holding a QUALIBAT qualification in the activity "Management and maintenance of thermal and air conditioning equipment"	
DIDACTIC METHOD (classes, workshops, internships)	Documentary audit; Preliminary examination of the file by the secretariat; Then examination by a rapporteur member of the committee.; ; File to be completed, meeting the 3 main categories of criteria defined by the standard and any additional requirements applicable to certain qualifications: - legal, legal and administrative - technical - financial	
DURATION OF COURSE	not applicable	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	Yes, follow-up every 12 months, renewal after 48 months	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	General Qualibat Regulations. Qualibat repository.; Accreditation according to standard NF X 50-091.	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	QUALIBAT; https://www.qualibat.com/	
SPONSORING INSTITUTION (keep track of the source of information)		

France - code:		F11
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Energy performance diagnostic	
EQF Level , if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	At the end of this compulsory preliminary training, you will be able to: -Establish an energy performance diagnosis on all types of real estate; -Advise stakeholders on possibilities for improving energy performance; ; https://competences.afnor.org/formations/diagnostic-de-performance-energetique-dpe-avec-mention ;	
TARGET GROUPS ADDRESSED*	Any professional candidate for certification in the energy field with distinction.	
DIDACTIC METHOD (classes, workshops, internships)	Alternating theoretical courses and practical examples; Activation based on a case study from real life.	
DURATION OF COURSE	35 hours over 5 days	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Cette formation nécessite des connaissances générales techniques sur le bâtiment : système constructif, terminologies technique et juridique.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	AFNOR Compétences; 01 41 62 76 22; https://competences.afnor.org/	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Module 1: General information on the building;
Knowledge & skills	Typology of constructions, buildings, construction products, main constructive systems and constructive techniques; Specificities of buildings constructed before 1948: architectural design and hygrothermal characteristics of materials

Units of Learning Outcome 2 (ULO)	Module 2: Regulatory texts;
Knowledge & skills	Legislative and regulatory texts; Legal concepts of property in buildings; Technical and legal building terminology.

Units of Learning Outcome 3 (ULO)	Module 3: Building thermics:
Knowledge & skills	winter and summer thermal concepts, prevention and treatment of thermal or hygrometric disorders on buildings; Thermal physical quantities; Greenhouse gas emission concept; Different modes of heat transfer; Principles of the calculations of losses by the walls and by air renewal; Principles for calculating a regulatory method; Sources of difference between conventional and measured consumption

Units of Learning Outcome 4 (ULO)	Module 4: The building envelope;
Knowledge & skills	Building materials: their thermal and heritage properties; Air tightness and insulation insulation faults; Sources of parasitic air infiltration; Opportunities for energy improvement and thermal rehabilitation of the building envelope and their potential impacts

Units of Learning Outcome 5 (ULO)	Module 5: Systems;
Knowledge & skills	Heating networks and technical equipment; Main ventilation equipment: single and double flow; Main personal equipment used to control the indoor climate; Installation failures and maintenance requirements; Innovative technologies; Notions of efficiency of heating and domestic hot water production systems; Renewable energy; Opportunities for energy improvement and thermal rehabilitation of systems and their potential impacts

Units of Learning Outcome 6 (ULO)	Module 6: ECD case study without mention;
Knowledge & skills	Detached house - 3CL-DPE method; Certification exam "DPE without mention"; Theoretical exam in QCM format relating to general knowledge of the building and specific knowledge of DPE without mention

Units of Learning Outcome 7 (ULO)	Missions linked to the mention;
Knowledge & skills	Types of ECD; The special case of shopping centers; Humid air diagram; Air conditioner; Air handling units; Communal heating; Network types; Balancing; Hydraulic circuit auxiliaries; Boiler rooms; Collective domestic hot water; Legionella risk management; Sizing of collective needs; Collective solar DHW; Photovoltaic solar; The Principe of fonctionnement; Types of solar modules; The sizing of the installation; Lighting of tertiary premises; Standards and regulatory references; Light source families; Assessment of achievements for the part with mention

Units of Learning Outcome 8 (ULO)	Practical exam on the conduct of an ECD
Knowledge & skills	Practical exam on the conduct of an ECD

France - code:		F12
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	External thermal insulation: design and implementation	
EQF Level , if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	This training will allow you to: • Identify the different thermal insulation systems from the outside; • Master efficient technologies, design and implementation rules; • Identify the various pathologies resulting from a failure to implement the ITE and the means to prevent them; ; https://formations.cstb.fr/formations/?etp=93 ;	
TARGET GROUPS ADDRESSED*	Project managers: Design and engineering offices - Technical controllers - Architects - Project managers: Property managers - Maintenance and operation managers - Construction and rehabilitation project managers - Manufacturers coatings - Industrial - Building companies - Control offices - Teachers and trainers	
DIDACTIC METHOD (classes, workshops, internships)	- Theoretical contributions; • Samples; • Case studies; End of training questionnaire	
DURATION OF COURSE	14 hours over 2 days	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Have basic technical knowledge in the building sector and know its main players	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	CSTB Formations 84, avenue Jean Jaurès Champs-sur-Marne 77447 Marne-La-Vallée Cedex 2; https://formations.cstb.fr/	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	DAY 1 INSULATION WITH PLASTERS;
Knowledge & skills	The different thermal insulation systems from the outside;; • Coatings on insulation; • Reported cladding; • Clothes; • Clothes with insulation; • Attached coatings in thin stone; ; Coating systems on insulation;; • The general presentation; • Design and implementation rules; • Systems assessment; ; Professional rules of maintenance and renovation

Units of Learning Outcome 2 (ULO)	DAY 2 CLADDING, CLOTHING, CLOTHING;
Knowledge & skills	Cladding reported - Clothing - Clothing;; • Principles; • Traditional cladding systems; • Non-traditional cladding systems; • Main stages of implementation; - Support recognition; - Layout and layout; - Installation of the framework; - Installation of insulation; - Laying of skin elements; - Treatment of singular points; • Evaluation of performances; - Resistance to external shocks; - Wind resistance; - Reaction to fire; • Pathologies

France - code:		F13
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Adapting cities to climate change: anticipating impacts and limiting their magnitude	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	anticipating impacts and limiting their magnitude; ; https://formations.cstb.fr/formations/?etp=243#onglets [0;	
TARGET GROUPS ADDRESSED*	Project owner public and private - Project manager: Design offices, Architects - Operators, Developers	
DIDACTIC METHOD (classes, workshops, internships)		
DURATION OF COURSE	14 hours over 2 days	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	CSTB Formations; 84, avenue Jean Jaurès Champs-sur-Marne; 77447 Marne-La-Vallée; Cedex 2; https://formations.cstb.fr/	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Part 1
Knowledge & skills	- Adapt buildings, neighborhoods and cities to the inevitable consequences of global warming on rising temperatures and precipitation.

Units of Learning Outcome 2 (ULO)	Part 2
Knowledge & skills	- Building scale: materials, envelope / structure, types of protection and types of ventilation, temperature control and energy saving

Units of Learning Outcome 3 (ULO)	Part 3
Knowledge & skills	- Neighborhood scale: urban forms, impact of winds and sunshine; impacts of plantations; rainwater management at the plot

Units of Learning Outcome 4 (ULO)	Part 4
Knowledge & skills	- Cities scale: heat islands, water management, impacts of urban composition

Units of Learning Outcome 5 (ULO)	Part 5
Knowledge & skills	- How to establish vulnerability diagnoses

Units of Learning Outcome 6 (ULO)	Part 6
Knowledge & skills	- Management of heat wave periods: good practices

France - code:		F14
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Design buildings with high energy performance; according to the principles of the circular economy under renovation	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	This training will allow you to: • identify the regulations for existing buildings; • measure the main impacts on the design, implementation and operation of the building; • Know how to integrate the circular economy into your energy renovation projects; ; https://formations.cstb.fr/formations/?etp=240#onglets 2;	
TARGET GROUPS ADDRESSED*	Public and private project owners - Architects - Engineering and design offices - Project management assistant - Programmers - Construction economists	
DIDACTIC METHOD (classes, workshops, internships)	- Theoretical and methodological contributions; • Application exercise; • Experience feedback	
DURATION OF COURSE	14 hours over 2 days	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Know the basics of building thermics and ventilation or have followed the training course "Panorama of building thermics: equipment, envelope"	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	CSTB Formations; 84, avenue Jean Jaurès Champs-sur-Marne; 77447 Marne-La-Vallée; Cedex 2; https://formations.cstb.fr/	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Day 1
Knowledge & skills	Overview of regulatory texts and energy labels for existing buildings;; • reminder of the challenges of energy rehabilitation by sector (housing, offices) and the main thermal regulations applicable in renovation; • certification bodies and associated labels; • definition of performance levels, challenges and limits of a BBC® Effinergie Renovation label; The low-consumption renovation step by step;; • prior energy and technical audit; • the studies to be carried out at each stage of the project; Technical solutions for energy optimization of buildings under renovation;; • efficient technical solutions "envelope": opaque walls, glass walls, air tightness; • high-performance technical solutions "systems": heating, air conditioning, DHW, ventilation, lighting

Units of Learning Outcome 2 (ULO)	Day 2
Knowledge & skills	Technical solutions for energy optimization of buildings under renovation (continued); • details of software and calculations for energy optimization of buildings; Feedback from BBC® Effinergie Renovation rehabilitation operations;; • collective building; • office; ; Integrating the circular economy into energy renovation projects; • methodology to be followed from the audit upon receipt, including diagnostics relating to reuse and reuse; • feedback from renovation operations integrating the circular economy

France - code:		F15
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	The art of adobe	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	- Become aware of the aesthetic, socio-cultural, emotional and sensory potentials of the adobe; - Identify the potentials and limits of the technique in construction; - Discover how science and technology are linked to the quality of rammed earth; - Experiment with the relationships that can exist between matter, body and mind; - To be able to describe the important parameters for the implementation of rammed earth; - Be able to describe the links between matter, material, technique, architecture and art; - Quote, describe and reproduce the professional gestures of adobe implementation techniques; - Break down and recompose earth with adobe; - Give keys to explore, experiment with the adobe technique so that you can express yourself with it; - Become aware of the importance of experimentation to be able to use the adobe technique; - Become aware of the usefulness of tools and methods of collaborative learning and collective intelligence, and know how to reuse them to work in a multidisciplinary group	
TARGET GROUPS ADDRESSED*	Architects, engineers, researchers, artisans, artists, designers	
DIDACTIC METHOD (classes, workshops, internships)	Conferences, Tutorials, Experimentation and shared experience	
DURATION OF COURSE	5 days	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Have a professional activity related to the rammed earth	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	Les Grands Ateliers; 96 bd de Villefontaine; 38090 Villefontaine; France; + 33 (0) 4 74 96 88 70; info@lesgrandsateliers.fr; lesgrandsateliers.org	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	DAY 1 - IN THE SKIN OF adobe - grasp the adobe through the body and emotions
Knowledge & skills	- The adobe palette - supervised practical workshop; - Get to know the material - supervised practical workshop; - The bad adobe - supervised practical workshop; - Grain and clay sciences - conference; - Body and matter - sensory workshop; - Building in adobe by Timur Ersen - conference

Units of Learning Outcome 2 (ULO)	DAY 2 - GOOD, GOOD, BEAUTIFUL PISE - experiment with the parameters to achieve a quality adobe
Knowledge & skills	• Body, matter, spirit - Lecture; - Live the peculiarities of adobe - supervised practical workshop; - Grains of adobe • creative workshop; - The adobe shapes - creative workshop; - Artistic adobe constructions by Mathilde Béguin - Conference

Units of Learning Outcome 3 (ULO)	DAY 3 - THE PAUSE DES PISÉS - explore the plastic, formal and chromatic qualities of the adobe
Knowledge & skills	• Pisé gymnastics - sensory workshop; - The adobe palette - supervised practical workshop; - Artists and the earth • conference; - Three sculptural towers - creative workshop; - New adobe construction by Martin Pointet - conference

Units of Learning Outcome 4 (ULO)	DAY 4 - PISÉ, WHERE ARE YOU? - immerse yourself in the history and current events of adobe construction
Knowledge & skills	- Rammed earth production line - supervised practical workshop; - Renewal and adobe industry - Conference; - Creation of a collective space installation - practical workshop; framed; - Testimony of a professional expert in raw earth construction participating in the network and development of the raw earth sector

Units of Learning Outcome 5 (ULO)	DAY 5 - DAMONS ALL TOGETHER - imagine and build a collective adobe installation
Knowledge & skills	- Finalization of the collective work; - Evaluations

France - code:		F16
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Dynamoe	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	This module will allow you to design and implement an energy renovation site by taking into account all the factors relating to energy performance (technologies, pathologies, financial) as well as providing a financial solution to your customers. It will also allow you to discover good practices for coordinating the various trades working on the site.; ; https://www.feebat.org/formations/architectes-et-moe/dynamoe/ ;	
TARGET GROUPS ADDRESSED*	Architects / Project management; Company design office manager	
DIDACTIC METHOD (classes, workshops, internships)	Face to face classes and distance learning	
DURATION OF COURSE	35 hours over 8 weeks	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Know how to recognize the heat losses of a building; ; Have general knowledge of: the different families of insulation; exterior joinery; the components of a wall; air tightness; thermal bridges; breakdowns; energy sources; energy systems; ; General knowledge of water vapor and condensation phenomena	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	The purpose of the DynaMOE 1 program is to be qualified as an "energy auditor" within the meaning of Decree No. 20186-416; this service to individuals is eligible for the CITE and MaPrimeRénov '.	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	ILOT FORMATION 45 Rue Jacques Gamelin 31100 TOULOUSE; Tel: 05 62 86 16 33; Mail: contact @ ilotformation.com; Site: www.ilot-formation.com;	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Stage 1 in Distance "KNOW": 16 sequences and 2 webinars; Duration: 4 weeks
Knowledge & skills	oDraw the initial state of a building; oKnow effective technical solutions; oIdentify and control the disorders linked to a renovation

Units of Learning Outcome 2 (ULO)	Stage 2 face-to-face "DO": Case studies and scenarios; Duration: 1 day
Knowledge & skills	oDraw the initial state of a building; oKnow effective technical solutions; oIdentify and control the disorders linked to a renovation

Units of Learning Outcome 3 (ULO)	Stage 3 in Distance "KNOW": 4 sequences and 1 webinar; Duration: 3 weeks
Knowledge & skills	o Know and choose the right tools; oDevelop a renovation program

Units of Learning Outcome 4 (ULO)	Step 4: Face-to-face "DO": Case studies and scenarios; Duration: 1 day
Knowledge & skills	o Know and choose the right tools; oDevelop a renovation program

Units of Learning Outcome 5 (ULO)	Step 5: Face-to-face "BEING": Role-playing and role-playing; Duration: 1 day
Knowledge & skills	o Know how to guide and advise the client; oPromote the project through a global offer and its support to the Contracting Authority

France - code:		F17
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*		Audit Reno
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)		oCarry out an energy audit in individual houses; o Acquire the means to build and cost a BBC work program in stages; o Know how to support owners in their decision to renovate; o Understand the energy audit market to build a service offer adapted to your structure; ; https://www.feebat.org/formations/professionnels-du-batiment/audit-reno/ ;
TARGET GROUPS ADDRESSED*		Craftsman / Site personnel / Journeyman; Team leader / Site supervisory staff; Works manager
DIDACTIC METHOD (classes, workshops, internships)		Classes and conferences
DURATION OF COURSE		14 hours over 2 days
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		Master the fundamentals of building thermics;
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		no
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		no
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*		AFPA NATIONAL – MONTREUIL 3 rue Franklin Tour Cityscope 93100 MONTREUIL; Tel: 06 74 69 84 10; Mail: Daniel.Romagnoli@afpa.fr ; Site: www.afpa.fr ;
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Sell an energy audit
Knowledge & skills	oIdentify the brakes and levers of energy renovation, the role of audit and the place of the professional; oBuild an offer as a craftsman / construction company; o Know the legal responsibilities of the auditor; o Take ownership of the sales pitch

Units of Learning Outcome 2 (ULO)	Build and cost an energy renovation;
Knowledge & skills	oKnow the challenges and objectives of energy renovation in France; oKnow the main methods and benchmarks for building an efficient energy renovation program and more specifically a BBC Réno work scenario by stage; o Knowing how to recommend BBC compatible renovation solutions, meeting customer needs and building issues, particularly old buildings; oKnow how to describe a renovation solution in accordance with regulatory requirements and understandable to the client; o Appropriate the tools to cost the work, estimate the eligible financial aid and present the cost to the client; o Know the eco-gestures and know how to make recommendations for energy-efficient behaviors; o Understand the principle of simulation, its contributions and its limits; oKnow the different energy audit software referenced and learn how to do an energy simulation to produce a compliant energy audit report;

Units of Learning Outcome 3 (ULO)	Establish an energy assessment;
Knowledge & skills	oLearn how to collect data to perform an energy audit; oKnow how to analyze energy bills; o Obtain methods to collect customer needs and establish a relationship of trust

Units of Learning Outcome 4 (ULO)	Become familiar with the energy audit;
Knowledge & skills	oDefine the scope of the energy audit; o Master the technical concepts and vocabulary relating to auditing to manipulate them and explain them simply to your customers; oKnow the mandatory content of the energy audit; oKnow the mandatory tools of the energy auditor

Units of Learning Outcome 5 (ULO)	Restore the audit and facilitate decision-making;
Knowledge & skills	o Know how to adapt your speech and use presentation materials; oIdentify the qualities of an audit report; oDefine a typical audit frame

France - code:		F18
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Collective solar installation for the production of domestic hot water	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	This module will allow you to understand and understand the implementation of a collective solar installation for the production of domestic hot water. You will discuss the characteristics of solar installations, regulations and technical aspects as well as the identification and resolution of faults; ; https://www.feebat.org/formations/professionnels-du-batiment/energies-renouvelables-thermiques/installation- solaire-collective-de-production-deau-chaude-sanitaire/ ;	
TARGET GROUPS ADDRESSED*	Craftsman / Site personnel / Journeyman; Responsible business; Team leader / Site supervisory staff; Works manager; Company Technical Manager / Referent	
DIDACTIC METHOD (classes, workshops, internships)	Classes and tutorials	
DURATION OF COURSE	28 hours over 4 days	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	The trainee masters the installation of current sanitary or heating equipment.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	CRER 8 rue Jacques Cartier ZA de Baussais 79260 CRECHE; https://www.crer.info/	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Educational process;
Knowledge & skills	oKnow the context of collective thermal solar in France; oKnow the technologies of collective solar hot water and all the related technical aspects in design and operation (hydraulic diagrams); oKnow the technical characteristics and performance of collective domestic hot water and know how to design a collective solar water heater; oKnow technical and health regulations; oKnow and understand the performance indicators; oCheck the correct sizing of the components of the specific technical specifications (organs: solar collectors, hydraulic network, security organs, regulation / remote management, electrical control, storage tanks) and choose the appropriate components; o Fill the installations; o Make the settings and settings for the various components (pressure, balancing valves, temperature limiters, regulation parameters); o Implement the communication mode for the transfer of statements; oRead meters, check observations / objectives consistency, analyze installation performance; oAccompany the reception of the installation; oIdentify and detect breakdowns, assess the urgency of the intervention to be carried out, provide curative maintenance

Units of Learning Outcome 2 (ULO)	Practical work;
Knowledge & skills	oShadow profile; oAccessibility and safety at work at height; oPressure management; oCommissioning of an installation - Balancing of main, primary and branch flows; oPumps management (dimensioning and flow); oRegulation and instrumentation (thermal energy metering)

France - code:		F19
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Heat pumps in individual housing	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	This module will allow you to master the installation, implementation and troubleshooting of a heat pump. You will also see how to identify the installation necessary for your future customers, and explain to them the various administrative steps for the installation of an individual heat pump.; ; https://www.feebat.org/formations/professionnels-du-batiment/energies-renouvelables-thermiques/pompe-a-chaaleur-en-habitat-individuel/ ;	
TARGET GROUPS ADDRESSED*	Craftsman / Site personnel / Journeyman; Responsible business; Team leader / Site supervisory staff; Works manager; Company Technical Manager / Referent	
DIDACTIC METHOD (classes, workshops, internships)	Classes and tutorials	
DURATION OF COURSE	35 hours over 5 days	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	The trainee masters the installation of current sanitary and heating equipment.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	BTP CFA DES PYRÉNÉES ATLANTIQUES – PAU Parc d'Activités Pau Pyrénées 36 avenue Léon Blum 64000 PAU; Tel: 05 59 02 61 04; Mail: cfabtp.pau@ccca-btp.fr ; Site: https://www.btpcfa-aquitaine.fr/fr/pau-pyrenees-atlantiques.html ;	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Educational process;
Knowledge & skills	oBeing able to situate the environmental context of the heat pump, regulatory, market and quality label to a client; oExplain to a client how a heat pump works; o Explain to the client the different administrative steps for implementing a heat pump; o Master the operating principles of a heat pump; oKnow how to calculate the loss of a building for domestic hot water and heating needs; oKnow how to analyze the existing installation; oKnow how to choose a heat pump configuration depending on the use and the frame; oKnow how to size a heat pump; oKnow the key points common to all types of heat pumps; oKnow the key points of the hydraulic and refrigeration system; oKnow the key points of the ventilation systems; oKnow the key points of geothermal systems; CapableBeing able to regulate a water or air flow; oBeing able to calculate a coefficient of performance with a flow measurement and a calculation of absorbed electrical power; oSee the influence of the variation of a water flow on the coefficient of performance of a heat pump; oTaking into account the parameters of correct operation on a refrigeration installation (pressure, temperature, overheating, cooling); oKnow the different key points of preventive maintenance; oKnow how to diagnose a fault on an installation

Units of Learning Outcome 2 (ULO)	Practical work;
Knowledge & skills	oThe commissioning and maintenance of a heat pump installation (aerothermal and geothermal); oThe study and diagnostics necessary to meet the needs of future customers; oThe study of the acoustic impact of an installation; oTake into account the measurement parameters for the proper functioning of a heat pump

France - code:	 F20
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Photovoltaic generator connected to the competence network Integration in the building
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Implementation on roof and integration into the building of photovoltaic modules. As part of an RGE qualification process, this training is necessary to enable you to obtain the QualiPV Bât label.; ; https://www.ines-solaire.org/formation/!/formation/qualitenr-qualipv-bat-generateur-photovoltaique-raccorde-au-reseau-competence-integration-au-bati/ ;
TARGET GROUPS ADDRESSED*	Craftsmen, employees and entrepreneurs of; roofing, waterproofing, zinc plating, framework
DIDACTIC METHOD (classes, workshops, internships)	> Theoretical talks and feedback; > Practical work on technical platforms
DURATION OF COURSE	21 hours over 3 days
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Know the basics of electricity and roofing
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	INES FORMATION; Tel : 04 79 26 44 30; Parc Technologique de Savoie Technolac; 60 Avenue Lac Léman; 73370 Le Bourget du Lac; www.ines-solaire.org
SPONSORING INSTITUTION (keep track of the source of information)	

Units of Learning Outcome 1 (ULO)	Classes topics
Knowledge & skills	Broad vision of the grid-connected photovoltaic market for the residential sector; Implementation of material representative of the market; Training criteria to obtain the RGE installer label (Recognized Guarantor of the Environment)

Units of Learning Outcome 2 (ULO)	A practical session (1 day);
Knowledge & skills	Installation of photovoltaic modules and electrical connection (PV15)

Units of Learning Outcome 3 (ULO)	Goals;
Knowledge & skills	Design and build a photovoltaic installation on the low voltage network; Know how to advise and support your client; Evaluate the solar resource, the production and the income of a facility; Know the safety rules for working at height; Master the work of zinc plating, bending, welding; Know the behavior of an installation under real operating conditions; Provide monitoring, maintenance and operation

France - code:		F21
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	commissioning agent	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Assure the missions of building commissioning agent on all phases of a project. Build and use methodological tools such as the commissioning plan. Master the technical points both in design and in production and know how to carry out hydraulic and aeratic checks ... Implement the tasks in pre-operation; ; https://www.costic.com/formations-en-genie-climatique/formation-professionnelle-continue/devenir-agent-de-commissionnement ;	
TARGET GROUPS ADDRESSED*	Technicians, design office engineers, HVAC companies, contracting authorities	
DIDACTIC METHOD (classes, workshops, internships)	Internship document. Practical development work with the use of measuring equipment. Discovery and practice of the commissioning toolbox (ADEME / COSTIC).	
DURATION OF COURSE	4 days	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	COSTIC; Tél. : 01 30 85 20 10 - formation@costic.com	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Commissioning::
Knowledge & skills	- Definition of commissioning, history; - The actors, the commissioning agent

Units of Learning Outcome 2 (ULO)	Commissioning tasks in the design phase::
Knowledge & skills	- The technical program and the book of specific technical clauses; - design vigilance points

Units of Learning Outcome 3 (ULO)	Commissioning tasks in the production phase::
Knowledge & skills	- Self-checking and development in hydraulics, aeratics, regulation; - sample checks; - The technical file

Units of Learning Outcome 4 (ULO)	Pre-operation missions
Knowledge & skills	adjusting settings, handing over to occupants, training technical staff, monitoring indicators

Units of Learning Outcome 5 (ULO)	Methodological tools for commissioning
Knowledge & skills	commissioning plan, table of analysis of design documents, verifications in progress ...

Units of Learning Outcome 6 (ULO)	Feedback from experiences; ;
Knowledge & skills	

Units of Learning Outcome 7 (ULO)	Practical work:
Knowledge & skills	- Hydraulic and aeratic tuning; - Establishment of a measurement plan and checks on a solar installation; - Practice in computer room of methodological tools

France - code:		F22
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Energy optimization of tertiary sites in operation	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Know the key points of intervention to optimize performance and reduce the consumption of air conditioning equipment in large tertiary sites while ensuring the comfort of the occupants.; ; https://www.costic.com/formations- en-genie-climatique/formation-professionnelle-continue/optimisation-energetique-des-sites-tertiaires-en- exploitation ;	
TARGET GROUPS ADDRESSED*	Operations managers, Technicians from climate engineering companies	
DIDACTIC METHOD (classes, workshops, internships)	Internship document. Practical work	
DURATION OF COURSE	3 days	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Good knowledge of HVAC installations on tertiary buildings;	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	COSTIC; Tél. : 01 30 85 20 10 - formation@costic.com	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Reminder
Knowledge & skills	Reminders of the concepts of comfort in commercial buildings;

Units of Learning Outcome 2 (ULO)	Air conditioning
Knowledge & skills	Reminders of the rules for dimensioning and design of air conditioning equipment (by air handling unit and fan coil units); calculation of loads and losses, temperature drops, hygienic air flows

Units of Learning Outcome 3 (ULO)	Chilled water production
Knowledge & skills	Optimization points for chilled water production: control of flow rates and temperatures, hydraulic decoupling, cascading;

Units of Learning Outcome 4 (ULO)	Hydraulic distribution
Knowledge & skills	Optimization points for hydraulic distribution: variable flow distributions, setting of variable speed circulators, balancing regulators

Units of Learning Outcome 5 (ULO)	Air distribution
Knowledge & skills	The points of optimization of the air distribution and the emission: the flow controls, the installation of the vents

Units of Learning Outcome 6 (ULO)	Intermittency programming
Knowledge & skills	Optimization points for intermittency programming and terminal regulation on fan coil units;

Units of Learning Outcome 7 (ULO)	Building management system
Knowledge & skills	The use of the building management system to optimize the operation

Units of Learning Outcome 8 (ULO)	Practical work;
Knowledge & skills	- Control of the hydraulic environment of a refrigeration unit; - Configuration of variable speed circulators; - Static and dynamic balancing; - Air flow measurements

France - code:		F23
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Efficient renovation - the keys to energy rehabilitation	
EQF Level , if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Faced with the challenges of massive energy rehabilitation to be carried out in France to achieve the objectives of the ecological transition, ASDER and ARCANNE offer training that provides the fundamentals of efficient renovation. Designed by and for professionals, free, open to everyone and accessible on the Internet, this training will give you the keys to embed energy performance in any renovation project.; ; Insulation, air tightness, adaptation of systems (ventilation, heating, hot water) and management of exchanges with other construction professionals are all subjects covered during this training. Beyond energy performance, indoor air quality and living comfort are also integrated. Finally, a section of the MOOC addresses the professional benefits of developments in the renovation market.; ; https://www.mooc-batiment-durable.fr/courses/course-v1:ASDER-	
TARGET GROUPS ADDRESSED*	Target audience in particular: building professionals, artisans and site professionals; ; And also :; • stakeholders in project management and consulting professions;; • trainers and teachers and their learners;; • project owners (professionals or individuals) as well as self-renovators;; • the prescribers of the real estate trades: real estate agents, trustees ... and financiers;; • sales and commerce: commercial technicians and sellers of building products and solutions.	
DIDACTIC METHOD (classes, workshops, internships)	The resources made available during this MOOC: Course videos with their pdf transcription, animated technical focus, interviews with field players, quizzes and exercises, selected recommended resource sheets, <u>MOOC monitoring certificate</u> .	
DURATION OF COURSE	Estimated 1h30 per week over the course of 6 weeks	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Without pre-requisites, this MOOC is open to everyone.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	Association Savoyarde; pour le Développement; des Énergies Renouvelables; Maison des énergies ; 124 rue du Bon Vent - BP 99 499; 73 094 Chambéry cedex 9; tél. 04 79 85 88 50; fax 04 79 33 24 64; formation@asder.asso.fr ; info@asder.asso.fr ; www.asder.asso.fr	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Week 1: Rehabilitation today;
Knowledge & skills	• Efficient rehabilitation; • Low consumption level; • Thermal losses in buildings

Units of Learning Outcome 2 (ULO)	Week 2;
Knowledge & skills	• Organization of spaces; • Ventilation, air tightness; • Humidity management

Units of Learning Outcome 3 (ULO)	Week 3;
Knowledge & skills	• Wall insulation; • Thermal bridges; • Thermal comfort

Units of Learning Outcome 4 (ULO)	Week 4;
Knowledge & skills	• Heating and domestic hot water; • Lighting and electrical equipment; • Zoom on old houses

Units of Learning Outcome 5 (ULO)	Week 5: My job today;
Knowledge & skills	• Business development; • New economic approach; • Feedback from experiences

Units of Learning Outcome 6 (ULO)	Week 6: The benefits of successful rehabilitation;
Knowledge & skills	• Opportunities for professionals; • New working methods; • Regulations and perspectives

France - code:		F24
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Technician installing energy and climate systems	
EQF Level, if any	4	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The holder of this baccalaureate is a professional technician responsible for the production of energy and climate equipment. Its activity is centered on the realization of installations and the organization of building sites in the following fields: air conditioning, ventilation, thermal, sanitary. The realization of installations includes the installation of equipment, the connection of materials, the installation and connection of electrical devices, the configuration of regulations.; The site organization includes taking into account a schedule, the distribution of tasks, the receipt of materials, monitoring of work and commissioning.; This professional technician is likely to be employed by companies of different natures and sizes. In artisanal companies, he will be a collaborator of the artisan, in small and medium-sized enterprises, he will perform team work supervised by a team leader or site foreman, in companies specialized in an energy sector, he will perform team work, on specific tasks.; ; https://www.francecompetences.fr/recherche/mcp/4433; ;	
TARGET GROUPS ADDRESSED*	Wants a career in sanitary, thermal and air conditioning installation companies for individual, collective housing, tertiary premises, industrial premises	
DIDACTIC METHOD (classes, workshops, internships)	Classes, tutorials, internship	
DURATION OF COURSE	2 years	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	MINISTRY OF EDUCATION OF FRANCE	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	- Scientific and technical analysis of an installation;
Knowledge & skills	

Units of Learning Outcome 2 (ULO)	- Mathematics and physical sciences;
Knowledge & skills	

Units of Learning Outcome 3 (ULO)	- Practical work in physical sciences;
Knowledge & skills	

Units of Learning Outcome 4 (ULO)	- Preparation of a realization;
Knowledge & skills	

Units of Learning Outcome 5 (ULO)	- Presentation of an activity file;
Knowledge & skills	

Units of Learning Outcome 6 (ULO)	- Implementation, realization;
Knowledge & skills	

Units of Learning Outcome 7 (ULO)	- Commissioning, adjustment and control;
Knowledge & skills	

Units of Learning Outcome 8 (ULO)	- Living language;
Knowledge & skills	

Units of Learning Outcome 9 (ULO)	- French
Knowledge & skills	

Units of Learning Outcome 10 (ULO)	- History geography;
Knowledge & skills	

Units of Learning Outcome 11 (ULO)	- Art education - applied arts;
Knowledge & skills	

Units of Learning Outcome 12 (ULO)	- Physical education and sport
Knowledge & skills	

France - code:		F25
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Professional certificate Plaster and insulation trades	
EQF Level, if any	4	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	the holder of the professional patent for plaster and insulation trades works on new buildings or in rehabilitation as part of the construction of housing, commercial offices or industrial buildings.; ; The works to be carried out in the plaster and insulation sector must often ensure, beyond the aesthetic aspect alone, specific functions (thermal, acoustic, fire protection, ...) and under special conditions (impact stress, humidity, great height).; ; It contributes to the interior layout of buildings (ceilings, partitions, counter-partitions, linings, technical ducts).; ; Due to the diversity of techniques and materials used, the holder of the professional patent "Plaster and insulation trades" can choose to specialize (plasterer, plasterer, staffeur-stucco worker, ceiling designer, ...) all maintaining a solid level of general skills.; ; https://www.francecompetences.fr/recherche/mcp/32238/#ancr8;	
TARGET GROUPS ADDRESSED*	Person targeting the Building trades: Plasterer-plasterer, assembler-plasterer in fittings	
DIDACTIC METHOD (classes, workshops, internships)	Classes, tutorials, internship	
DURATION OF COURSE	2 years	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	MINISTRY OF EDUCATION OF FRANCE	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Study and preparation of a work
Knowledge & skills	Collect and classify information useful for carrying out the work; Decode and analyze the data useful for carrying out the work; Translate graphically; Assess the risks and propose preventive measures; Determine material requirements; Determine material and labor requirements; Manage supplies; The evaluation methods are described in the appendices to the decree defining the diploma relating to the evaluation (see in particular the examination regulations and definitions of tests).

Units of Learning Outcome 2 (ULO)	Monitoring and production of works in companies;
Knowledge & skills	Prepare and follow up on tasks; Ensure the daily management of the site; Ensure the health and safety of people; Prepare the workstation; Check the conformity of supports and structures; Lead a small team; Communicate with the various stakeholders on the site; Realize; The evaluation methods are described in the appendices to the decree defining the diploma relating to the evaluation (see in particular the examination regulations and definitions of tests).

Units of Learning Outcome 3 (ULO)	Realization of common works;
Knowledge & skills	Build common structures in plastered bricks; Plaster plastering; Build joint structures in plates on framework; Build common structures in tiles; Make a plaster molding; Apply decorative elements; Plastering and laying strips; The evaluation methods are described in the appendices to the decree defining the diploma relating to the evaluation (see in particular the examination regulations and definitions of tests).
Units of Learning Outcome 4 (ULO)	Completion of complex design works;
Knowledge & skills	Establish structures; Build complex design works in plastered bricks; Build complex design structures in plates on framework; Perform a doubling in thermo-acoustic insulating complex; Build partitions in floor standing panels; Make a light dry screed; Build complex design structures in tiles; Build a modular ceiling; Perform interior thermo- acoustic insulation; The evaluation methods are described in the appendices to the decree defining the diploma relating to the evaluation (see in particular the examination regulations and definitions of tests).
Units of Learning Outcome 5 (ULO)	Mathematics;
Knowledge & skills	Find, extract and organize information; Suggest, choose, execute a resolution method; Experiment, simulate; Criticize a result, argue; Report an approach, a result, orally or in writing; The evaluation methods are described in the appendices to the decree defining the diploma relating to the evaluation (see in particular the examination regulations and definitions of tests).
Units of Learning Outcome 6 (ULO)	Physical and chemical sciences;
Knowledge & skills	Find, extract and organize information; Propose, choose, execute a resolution method or an operating protocol while respecting safety rules; Experiment, simulate; Criticize a result, argue; Report an approach, a result, orally and in writing; The evaluation methods are described in the appendices to the decree defining the diploma relating to the evaluation (see in particular the examination regulations and definitions of tests).
Units of Learning Outcome 7 (ULO)	Expression and knowledge of the world;
Knowledge & skills	French and history-geography;; Produce and analyze speeches of various kinds; Produce and analyze media using different languages; Mobilize the culture acquired during training to produce and analyze speeches and materials; Build a personal reflection based on documents offered, on work carried out in progress, on readings and personal and professional experience; The evaluation methods are described in the appendices to the decree defining the diploma relating to the evaluation (see in particular the examination regulations and definitions of tests).
Units of Learning Outcome 8 (ULO)	Modern foreign language;
Knowledge & skills	Level B1 + skills; If Spoken Production; Interact in a foreign or regional language; Understand a written document written in a foreign or regional language; The evaluation methods are described in the appendices to the decree defining the diploma relating to the evaluation (see in particular the examination regulations and definitions of tests).

France - code:		F26
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	PHOTOVOLTAIC GENERATOR CONNECTED TO THE NETWORK	
EQF Level , if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	> Acquire the theoretical and practical knowledge necessary for the installation of a high-power photovoltaic solar system connected to the network: Customer advice, design and sizing of an installation, implementation and commissioning, operation-maintenance; > Obtain the QualiPV High Power qualification; ; https://www.qualit- enr.org/ ; ;	
TARGET GROUPS ADDRESSED*	Craftsmen, employees and entrepreneurs of electrical installation works	
DIDACTIC METHOD (classes, workshops, internships)	> Exercises on photovoltaic modules (reading masks, influence of inclinations and orientations, etc.) and remote production monitoring; > Insulation fault detection, cable crimping and safety labelling; > Commissioning and control of a photovoltaic installation connected to the network; > Action sheets on the various electrical risks, DC and AC part; > Installation control by infrared thermography and I (V) curve analysis; > Checking the installation of photovoltaic modules and their connections	
DURATION OF COURSE	28 hours over 4 days	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	The trainee masters the Low Voltage electrical installation and has electrical accreditation.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	QUALIT'ENR; https://www.qualit- enr.org/ ;	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	CUSTOMER ADVICE ON TECHNICAL AND FINANCIAL PLANS;
Knowledge & skills	> Photovoltaic market / inventory / Potential; > Energy return time / Carbon balance / Recycling; > Orders of magnitude for installation and connection costs; > Regulatory and administrative context; > Solar resource / sun path / mask; > Photovoltaic modules; > Photovoltaic inverters

Units of Learning Outcome 2 (ULO)	DESIGN AND DIMENSIONING OF AN INSTALLATION;
Knowledge & skills	> Different Photovoltaic systems; > Different types of implantation; > Design principle; > Inverter / Photovoltaic chain pair; > Assessment of the deliverable; > Protection of property and people; > General / Insulation faults; > Protection of modules against shading and overcurrent / Choice of DC cables; > Choice of surge arresters / Induction loop; > Choice of inter-disconnector, AC circuit breakers and AC cables / Compliance with voltage drops; > Safety at work at height

Units of Learning Outcome 3 (ULO)	ORGANIZATION OF KEY POINTS OF IMPLEMENTATION and COMMISSIONING;
Knowledge & skills	> General; > Structures / modules / inverters / cables / labeling; > Tests / acceptance / technical and contractual files

Units of Learning Outcome 4 (ULO)	MAINTENANCE OF FACILITIES;
Knowledge & skills	> Monitoring indicators / monitoring systems; > Maintenance range / maintenance contract / tooling; > Most common faults / infrared thermography / curve analyzer

Units of Learning Outcome 5 (ULO)	VALIDATION TEST OF ACQUISITIONS AND TRAINING REPORT
Knowledge & skills	

France - code:		F27
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Combined Solar System	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	> Acquire the theoretical and practical knowledge necessary for setting up a solar heating project; > Estimate the feasibility of the project compared to the existing installation; > Choose a suitable system that meets your needs;	
TARGET GROUPS ADDRESSED*	Professionals in the installation of sanitary and thermal equipment	
DIDACTIC METHOD (classes, workshops, internships)	> Qualit'EnR repository support; > Technical platform bringing together the various solar thermal technologies; > Roof models; > Combined Solar Water Heaters in activity	
DURATION OF COURSE	21 hours over 3 days	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	> Hold Qualisol Individual Solar Water Heater or Qualisol COLLECTIF; > Know the basics of hot water heating and building thermal or have followed the TH @ 0 training in e-learning	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	QUALIT'ENR; https://www.qualit-enr.org/ ;	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	GENERAL INFORMATION ON THE RENEWABLE ENERGY SECTOR;
Knowledge & skills	> Renewable energy potential; > State of the market; > Regulatory framework and political strategy for the development of renewable energies

Units of Learning Outcome 2 (ULO)	GENERAL SSC:
Knowledge & skills	> Operating principle of Combined Solar System; > First approach to the constraints linked to the implementation of these systems

Units of Learning Outcome 3 (ULO)	Individual Solar Water Heater / Combined Solar System;
Knowledge & skills	> Differences between Individual Solar Water Heater and Combined Solar System; > Strengths and constraints of Combined Solar Systems; > Summary of the first day

Units of Learning Outcome 4 (ULO)	SOLAR TECHNOLOGIES;
Knowledge & skills	> Deposit and solar radiation; > Determination of the available resource; > Sensor technologies; > Solutions to manage excess energy; > Focus on installing sensors; > Safety awareness in renewable energies

Units of Learning Outcome 5 (ULO)	EXISTING INSTALLATION;
Knowledge & skills	> Building thermal: calculation of building needs and consumption

Units of Learning Outcome 6 (ULO)	DIMENSIONING OF FACILITIES;
Knowledge & skills	> Domestic hot water requirements; > Sizing; > Sizing tools Energy storage; > Accessories and equipment for the primary hydraulic circuit

Units of Learning Outcome 7 (ULO)	EVALUATION OF PERFORMANCES;
Knowledge & skills	> Performance indicators; > Results of performance monitoring campaigns; Combined Solar System; > Case study

Units of Learning Outcome 8 (ULO)	TYPICAL DIAGRAMS;
Knowledge & skills	> Different schematic diagrams of the Combined Solar System; > Tutorials: Study and development of hydraulic diagrams for the Combined Solar System

Units of Learning Outcome 9 (ULO)	CASE STUDY
Knowledge & skills	

Units of Learning Outcome 10 (ULO)	DEVELOPMENT AND MAINTENANCE
Knowledge & skills	

Units of Learning Outcome 11 (ULO)	VALIDATION TEST OF ACQUISITIONS AND TRAINING REPORT
Knowledge & skills	

France - code:		F28
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Design, sizing and maintenance of solar photovoltaic systems in isolated sites	
EQF Level , if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	> Sizing an autonomous photovoltaic solar installation; > Optimizing the different components; > Understand the implementation and maintenance of isolated site installations; ; https://www.ines-solaire.org/formation/!formation/conception-dimensionnement-et-maintenance-des-systemes-solaires-photovoltaiques-en-site-iso/ ;	
TARGET GROUPS ADDRESSED*	> Design offices, project managers and technical referents of electrical installation works companies; > Project managers, project owners; > Association working in electrification in weakly electrified countries	
DIDACTIC METHOD (classes, workshops, internships)	> Theoretical presentations, simulation exercises, practical demonstrations; > Case study on real projects	
DURATION OF COURSE	35 hours over 5 days	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	> Basics of electricity and dimensioning of conventional electrical installations; > Basics of photovoltaics	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	INES FORMATION; Sophie NOIRET; Renseignements administratif et financier; sophie.noiret@ines-solaire.org ; Tel : 04 79 26 44 30; Parc Technologique de Savoie Technolac; 60 Avenue Lac Léman; 73370 Le Bourget du Lac; www.ines-solaire.org	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	DAY 1 INTRODUCTION TO THE SOLAR RESOURCE;
Knowledge & skills	> Astronomical and meteorological data; > Far and near masks (practical work); > Inclination, orientation and albedo; > Principle of calculating irradiation in a plane; > Data source in solar irradiation; > Estimated yield

Units of Learning Outcome 2 (ULO)	DAY 1 INTRODUCTION TO PHOTOVOLTAIC SOLAR;
Knowledge & skills	> Principle of the photovoltaic effect and different photovoltaic technologies; > Conversion efficiency and solar spectrum (STC conditions); > Electrical characterization of photovoltaic cells and modules, peak power; > Electrical performance according to irradiance and temperature, notion of NOCT; > Performance, degradation and aging; > Different applications of photovoltaics; > Photovoltaic markets; > Potential and evolution of the cost of electricity; > Life cycle analysis

Units of Learning Outcome 3 (ULO)	DAY 2 DESCRIPTION OF PV INSTALLATIONS IN ISOLATED SITE;
Knowledge & skills	> Different architectures for isolated sites (AC / DC bus); > Photovoltaic modules for isolated sites; > Direct charge and MPPT regulator; > Battery technologies; > Choice of system and usage voltages; > Battery capacity and Peukert's law; > Charge / discharge cycles and lifespan; > Different charging phases; > Rules to improve battery life; > Charger / regulator converters for isolated sites; > Electrical characteristics of inverters

Units of Learning Outcome 4 (ULO)	DAY 2 INTRODUCTION TO SECURITY AND STANDARDS IN EFFECT FOR ISOLATED SITE
Knowledge & skills	> Wiring and safety devices; > Hot spot phenomenon; > Awareness of standard C15-712-2; > Specifics of standards on batteries
Units of Learning Outcome 5 (ULO)	DAY 3 SIZING OF SELF-CONTAINED PHOTOVOLTAIC INSTALLATIONS;
Knowledge & skills	> Definition of electrical energy needs; > Determination of the site's solar irradiation; > Estimated number of days of autonomy; > Calculation of peak power and required battery capacity; > Interest of hybrid systems with generator
Units of Learning Outcome 6 (ULO)	DAY 3 DESIGN OF AUTONOMOUS PHOTOVOLTAIC SYSTEMS;
Knowledge & skills	> Pre-selection of the different components: module, battery, regulator, converter, wiring, etc.; > Verification of compatibility between components; > Overall energy balance of the installation and rate of coverage of electrical needs; > Estimate of the cost price of the photovoltaic installation and the kWh photovoltaic
Units of Learning Outcome 7 (ULO)	DAY 4 PRACTICAL DEMONSTRATIONS;
Knowledge & skills	> Commissioning of components used for autonomous PV installations; > Specificity and precaution with batteries; > Experimentation and measurements on real projects
Units of Learning Outcome 8 (ULO)	DAY 4 SYSTEMS WITH GENERATORS
Knowledge & skills	> Generator set technologies;
Units of Learning Outcome 9 (ULO)	DAY 4 SOFTWARE APPROACH:
Knowledge & skills	> Sizing of an autonomous photovoltaic installation in low power direct current; > Sizing of an autonomous PV installation in medium power alternating current with generator
Units of Learning Outcome 10 (ULO)	DAY 5 APPLICATION OF STANDARD C15-712-2;
Knowledge & skills	> Protection against property and people (lightning, circuit breaker); > Additional reference documents; > Neutral systems
Units of Learning Outcome 11 (ULO)	DAY 5 MAINTENANCE AND RETURNS OF EXPERIENCES;
Knowledge & skills	> Main sources of breakdown; > Battery maintenance; > Intervention on an autonomous installation; > Follow-up and monitoring; > Intervention report
Units of Learning Outcome 12 (ULO)	VALIDATION TEST OF ACQUISITIONS AND TRAINING REPORT
Knowledge & skills	

France - code:	 F29
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Building life cycle analysis according to the E + C- standard
EQF Level , if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	> Understand and pass a Life Cycle Assessment (LCA) according to the E + C- standard; > Build sustainable buildings with BIM; > Understanding the E + C- label; ; https://www.ines-solaire.org/formation/l/formation/analyse-de-cycle-de-vie-du-batiment-selon-le-referentiel-e-c-/ ;
TARGET GROUPS ADDRESSED*	> Design offices; > Architects; > Building owners;
DIDACTIC METHOD (classes, workshops, internships)	> Presentations; > Case studies
DURATION OF COURSE	14 hours over 2 days
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	> Know the energy and environmental context; > Know the principle of BIM (Building Information Modeling)
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	no
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	INES FORMATION; Sophie NOIRET; Renseignements administratif et financier; sophie.noiret@ines-solaire.org; Tel : 04 79 26 44 30; Parc Technologique de Savoie Technolac; 60 Avenue Lac Léman; 73370 Le Bourget du Lac; www.ines-solaire.org
SPONSORING INSTITUTION (keep track of the source of information)	

Units of Learning Outcome 1 (ULO)	ENERGY RENOVATION;
Knowledge & skills	> Stakes; > Performance levels; > Efficient envelope: the basis of a renovation; > High-performance systems and solar integration

Units of Learning Outcome 2 (ULO)	RAISING;
Knowledge & skills	> Project setup; > Elevation techniques; > Structure

Units of Learning Outcome 3 (ULO)	PREFABRICATION;
Knowledge & skills	> 3D scan; > Prefabrication of facades; > Modular prefabrication

Units of Learning Outcome 4 (ULO)	FEEDBACK
Knowledge & skills	> Case studies

Units of Learning Outcome 5 (ULO)	VALIDATION TEST OF ACQUISITIONS AND TRAINING REPORT
Knowledge & skills	

2 ANNEX – PROFESSIONAL QUALIFICATIONS OF GERMANY

GERMANY - code:		G01
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Energy consulting in middle class	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Getting educated in the whole sector of energy consulting. Basics knowledge of energy efficient building solutions with cross sectoral scope like economics and law. Getting listed in the bafa-list to be able to apply for funding programs and subsidies.	
TARGET GROUPS ADDRESSED*	Students, engineers, educated energy professionals (craftsman)	
DIDACTIC METHOD (classes, workshops, internships)	Presence class and/or online + final exam	
DURATION OF COURSE	80 Units à 45 minutes	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Craftsman, Engineers, Architects	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	16 Units à 45 minutes within 2 years	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Bafa Energy Consulting in middle class	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	Energy Saving Ordinance 2016	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.deutsches-energieberaternetzwerk.de/lehrgangsfuer-energieberatung-im-mittelstand-80-ue-inmodulen/#1510302289620-b355c2c2-eae84273-afb3	
SPONSORING INSTITUTION (keep track of the source of information)	https://www.bafa.de/DE/Energie/Energieberatung/Energieberatung_Mittelstand/energieberatung_mittelstand_node.html	

Units of Learning Outcome 1 (ULO)	Laws
Knowledge & skills	· Applications according to EnEV; legal bases and standards

Units of Learning Outcome 2 (ULO)	Envelope of new construction / existing buildings
Knowledge & skills	· Insulation and reduction of energy losses

Units of Learning Outcome 3 (ULO)	Plant engineering and cross-section technologies
Knowledge & skills	· heating and cooling technology; Ventilation systems; Control engineering; CHP plants; Lighting and compressed air; Motors and pumps; Heat recovery; Hot water preparation

Units of Learning Outcome 4 (ULO)	Renewable Energies
Knowledge & skills	· Solar thermal energies; PV; biomass, biogas; Geothermal energy; Storages

Units of Learning Outcome 5 (ULO)	Economics
Knowledge & skills	· Profitability analysis; Financing models; Subsidies

Units of Learning Outcome 6 (ULO)	Miscellaneous
Knowledge & skills	· Transport; Implementation; Consultation report

GERMANY - code:		G02
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Building energy consultant (craftsman)	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Further training for master craftsmen to become qualified energy consultants. A motivation is to get self-employed. Goal is to detect necessary energetically measures and to implement them oneself.	
TARGET GROUPS ADDRESSED*	Master plasterer master carpenter Master roofer Master Chimney Sweep Master Mason	
DIDACTIC METHOD (classes, workshops, internships)	Presence classes	
DURATION OF COURSE	Fr 14:00 - 20:45 Uhr, Sa 08:15 - 15:15 Uhr Course duration 240 hours á 45min + final exam	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Master Craftsman	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	No	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	No	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	Energy Saving Ordinance 2016	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.bia-stuttgart.de/qih	
SPONSORING INSTITUTION (keep track of the source of information)	https://www.bia-stuttgart.de/kurse/gebäudeenergieberater-im-handwerk-3671_0.coursedetail.html?id=208419&search-onr=3671&img=2	

Units of Learning Outcome 1 (ULO)	Plan modernizations
Knowledge & skills	apply laws and regulations for energy saving in existing buildings; Record buildings and technical installations and document them for the building physics assessment; Carry out calculations according to the energy saving regulations and applicable standards; Develop, calculate and present a concept for improving the energy balance of the building stock; Set up cost/benefit analysis of the planned modernisation measure Set up a disposal concept for the planned modernisation measure; Consider legal regulations for construction in existing buildings when planning modernization; Aspects of the restoration planning and implementation of listed buildings Draw up and award tenders and carry out quality assurance within the framework of construction supervision

Units of Learning Outcome 2 (ULO)	Evaluate and select buildings and building structures
Knowledge & skills	Building materials science; Building construction; Environmental protection/building material

Units of Learning Outcome 3 (ULO)	Consider building physics requirements
Knowledge & skills	Thermal insulation; Moisture protection; Sound insulation; Fire protection

Units of Learning Outcome 4 (ULO)	Evaluate and select technical equipment
Knowledge & skills	Energy and environmental technology; Systems engineering - Heating; Plant engineering - Ventilation technology; Plant engineering - Lighting/electrical engineering; Plant engineering -

Units of Learning Outcome 5 (ULO)	Apply legal regulations for energy saving and energy efficiency Requirements and proofs, legal basis (especially)
	Air tightness, thermal bridges; Application and implementation issues; Air tightness measurement with Blower- Door and thermography

Units of Learning Outcome 6 (ULO)	Apply legal regulations for energy saving and energy efficiency Requirements and proofs, legal basis (especially)
	Air tightness, thermal bridges; Application and implementation issues; Air tightness measurement with Blower- Door and thermography

GERMANY - code:	 G03
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Energy auditor
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The Energy Auditor is specialised in the planning and implementation of energy audits (increase the efficiency, reduction of costs, monetary and environmental benefits).
TARGET GROUPS ADDRESSED*	Design & planning (architects, civil engineers, sustainability consultants etc)
DIDACTIC METHOD (classes, workshops, internships)	Theoretical classes
DURATION OF COURSE	40 hours
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	• High school diploma in technical field + 4 years of working experience • OFTS (Superior technical training and education in the field of energy and environment + 3 years of working experience) • ITS diploma in the field of energy and environment + 3 years of working experience • University degree (technical and environmental engineering + 2 years of experience / other scientific degrees + 3 years of experience)
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	Yes, after years
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Yes, Accredia public register (https://tinyurl.com/yc797kva)
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	Directive 2012/27/CE UNI CEI/TR 11428:2011 UNI CEI EN 16247-1,2,3,4,5 UNI CEI EN ISO 50001
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	-
SPONSORING INSTITUTION (keep track of the source of information)	BUILD UP Program (BRICKS Project, BUS Project)

Units of Learning Outcome 1 (ULO)	Skills and role of Energy Auditor. Diagnosis process
Knowledge & skills	• Regulatory framework, objectives and tools of the Energy Audit / Diagnosis. • Energy auditor requirements according to UNI CEI EN 16247-5. • Description of the Energy Diagnosis Procedures on the basis of the UNI / TR 11428 Technical Report. • The Energy Diagnosis process according to UNI CEI EN 16247-1 (general requirements), UNI CEI EN 16247-2 (Buildings).

Units of Learning Outcome 2 (ULO)	Regulatory references, scenarios and actors
Knowledge & skills	• Knowledge on energy saving and environmental protection scenarios and actors. • Knowledge on the reference regulatory framework. Directive 2012/27 / CE. • Energy management. Energy diagnosis and general requirements of the energy diagnosis service (UNI CEI / TR 11428:2011) • REDE / EGE certification, tasks and areas of action (Esco, Public administrations, etc.)

Units of Learning Outcome 3 (ULO)	Economic and financial analysis
Knowledge & skills	• Sources and financing instruments. • Energy performance contract (EPC). • Economic and financial analysis of energy saving measures: foundations and application to significant cases.

Units of Learning Outcome 4 (ULO)	The energy market
Knowledge & skills	• Energy management systems: the UNI CEI EN ISO 50001 standard and applications

Units of Learning Outcome 5 (ULO)	Energy management systems
Knowledge & skills	• Energy management systems: the UNI CEI EN ISO 50001 standard and applications

Units of Learning Outcome 6 (ULO)	Energy diagnosis
Knowledge & skills	• Practical cases and examples: analysis of a calculation report (as required by the reference legislation); building closure technical data sheets; consistency of input data; typical errors of the input data; analysis of the output data. • Simulation of an energy diagnosis. • Illustration of case studies and examples of energy efficiency.

Units of Learning Outcome 7 (ULO)	Critical analysis of case studies and simulation
Knowledge & skills	• Practical cases and examples: analysis of a calculation report (as required by the reference legislation); building closure technical data sheets; consistency of input data; typical errors of the input data; analysis of the output data. • Simulation of an energy diagnosis. • Illustration of case studies and examples of energy efficiency. • Simulation of an energy diagnosis. • Illustration of case studies and examples of energy efficiency.

GERMANY - code:	 G04
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Energiemanagement im Facility Management
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	2-Day Modul of developing energy management skills referring to manage real estates with a view german laws.
TARGET GROUPS ADDRESSED*	Management personnel building services, technical managers, service and energy supply companies, specialist building services personnel in the strategic and operational area of building management
DIDACTIC METHOD (classes, workshops, internships)	Presence classes
DURATION OF COURSE	2 days
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	none
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	-
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	-
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	
SPONSORING INSTITUTION (keep track of the source of information)	

Units of Learning Outcome 1 (ULO)	Introduction and general principles of energy management
Knowledge & skills	• legislation such as the EnEG and the EnEV • Short introduction: DIN EN ISO 50001 • Technical rules • Concepts, definitions and efficiencies • Funding opportunities

Units of Learning Outcome 2 (ULO)	Energy Management
Knowledge & skills	• Terms and definitions • Planning phase and evaluation of existing plants • Energy consumption recording / analysis • Weather adjustment • Determination of key figures

Units of Learning Outcome 3 (ULO)	Technical building management from an energy assessment perspective
Knowledge & skills	• Building automation, measurement and control technology • Energy efficiency through structural engineering measures • Energy efficiency for air conditioning systems • Optimum operation of building services systems, such as heating, cooling, electrical (including lighting) • Use of regenerative or new technologies and energies in building services engineering • Benchmarking according to VDI 3807

Units of Learning Outcome 4 (ULO)	Practical examples (elaborated with the plenary)
Knowledge & skills	-

GERMANY - code:		G05
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Energy consultant	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Energy consultants define measures whose implementation leads to immediate energy savings and in particular CO2 emissions. Energy consulting in residential buildings on site (on-site consulting) results in concrete concepts for sophisticated energy-related refurbishment of existing buildings.	
TARGET GROUPS ADDRESSED*	Architects, engineers, master craftsmen and technicians	
DIDACTIC METHOD (classes, workshops, internships)	Presence classes	
DURATION OF COURSE	200 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Architects, engineers, master craftsmen and technicians (authorised to exhibit according to §21 EnEV for residential buildings)	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	Yes, after 3 years	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	https://www.energie-effizienz-experten.de	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	-	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	TÜV Thüringen https://www.die-tuev-akademie.de/seminare/energie-umwelt/energiemanagement/energieberater-tuev	
SPONSORING INSTITUTION (keep track of the source of information)	Bafa https://www.bafa.de/DE/Home/home_node.html	

Units of Learning Outcome 1 (ULO)	Legal information
Knowledge & skills	• Application of the EnEV in practice • EU building directive, EnEG, EEWärmeG • Standards, especially DIN V 18599

Units of Learning Outcome 2 (ULO)	Building envelope in new and existing buildings
Knowledge & skills	• Energetic basics • External and internal insulation • Thermal bridges

Units of Learning Outcome 3 (ULO)	Plant engineering in new and existing buildings
Knowledge & skills	• Energy and environmental technology

Units of Learning Outcome 4 (ULO)	Renewable energies in new and existing buildings
Knowledge & skills	-

Units of Learning Outcome 5 (ULO)	Use of renewable energies and photovoltaics
Knowledge & skills	-

Units of Learning Outcome 6 (ULO)	Balancing and profitability, modernisation planning and measures, energy certificates
Knowledge & skills	-

Units of Learning Outcome 7 (ULO)	Verification according to DIN 4108 or DIN V 18599
Knowledge & skills	-

Units of Learning Outcome 8 (ULO)	Planning/construction supervision
Knowledge & skills	-

Units of Learning Outcome 9 (ULO)	Practical examples and project work
Knowledge & skills	-

Units of Learning Outcome 10 (ULO)	Examination for obtaining the personal certificate
Knowledge & skills	-

GERMANY - code:		G06
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Energy consultant - Module 1	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The course provides participants with compact and well-founded factual	
TARGET GROUPS ADDRESSED*	Energy consultant	
DIDACTIC METHOD (classes, workshops, internships)	Presence classes	
DURATION OF COURSE	16 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Energy consultant	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	TÜV Certificate	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	TÜV Thüringen https://www.die-tuev-akademie.de/seminare/energie-umwelt/energiemanagement/energieberater-tuev	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Legal information
Knowledge & skills	• EU building directive, EEG, EnEV, EEWärmeG • DIN V 18599 - Energy evaluation of buildings • DIN 4108/4701 - Thermal insulation and heat requirement calculation

Units of Learning Outcome 2 (ULO)	Building envelope in new and existing buildings
Knowledge & skills	• Current requirements for new and existing buildings • Requirements for energy-efficient buildings, practical examples

Units of Learning Outcome 3 (ULO)	Detect and evaluate thermal bridges
Knowledge & skills	

Units of Learning Outcome 4 (ULO)	Plant engineering and renewable energies in new and existing buildings
Knowledge & skills	-

Units of Learning Outcome 5 (ULO)	Modernisation recommendations, calculation examples
Knowledge & skills	-

Units of Learning Outcome 6 (ULO)	Funding programmes
Knowledge & skills	-

GERMANY - code:	 G07
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Energy consultant - Module 2
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Improvement of knowledge about heat pump technology for efficiency buildings
TARGET GROUPS ADDRESSED*	Energy consultant
DIDACTIC METHOD (classes, workshops, internships)	Presence classes
DURATION OF COURSE	8 hours
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Energy consultant
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	TÜV Certificate
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	TÜV Thüringen https://www.die-tuev-akademie.de/seminare/energie-umwelt/energiemanagement/energieberater-tuev
SPONSORING INSTITUTION (keep track of the source of information)	

Units of Learning Outcome 1 (ULO)	Basic Course
Knowledge & skills	• Basics of heat pump technology • Design and function of heat pumps and their components • Comparison between inverter technology and on/off technology • Operating modes and hydraulic circuits of heat pumps • Heating systems with heat pumps and their evaluation (new and existing buildings) • Correct selection of the heat source (advantages and disadvantages) • Domestic hot water heating with heat pumps • Active and passive cooling with heat pumps • Primary energy evaluation of heat pumps • Economy and promotion of heat pumps

GERMANY - code:		G08
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Energy consultants for historical buildings	
EQF Level , if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The advanced training course "Energy Advisor for Monuments" enables experts to carry out and evaluate measures to increase energy efficiency within the framework of the KfW programme "Efficient House Monument" (monuments and other buildings worthy of preservation) and to issue confirmations for the application for funding.	
TARGET GROUPS ADDRESSED*	Architects, engineers (civil engineers, technical building equipment engineers), building physicists with <u>experience or further training in monument preservation</u>	
DIDACTIC METHOD (classes, workshops, internships)	Presence classes	
DURATION OF COURSE	72 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	- Degree in architecture, civil engineering, TGA or building physics - Completed training as energy consultant with BAFA approval (registration in the dena list of experts is not required). If the training was completed before 2007, a supplementary further training (e.g. DIN V 18599) must be documented. - Proof of independence in accordance with the admission restrictions of the BAFA directive of 10.09.2014 - Demonstrable experience in monument conservation through a list of references, alternatively postgraduate studies in monument conservation or relevant further training	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	TÜV Certificate	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	TÜV Thüringen https://www.die-tuev-akademie.de/seminare/energie-umwelt/energiemanagement/energieberater-tuev	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Basic Course
Knowledge & skills	- Basic knowledge of monument protection/preservation - Possibilities of support - Laws, regulations, directives - Energetic and building physics evaluation of the historical stock - energetic and building physics anamnesis - Conception of building physics measures compatible with the preservation of historical monuments - Holistic approach - Historic preservation planning and maintenance concept - Execution practice

GERMANY - code:		G09
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Energy Efficiency Consultant SMEs	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Energy efficiency consultants provide expert and independent advice with the aim of ensuring that companies use energy sparingly and efficiently. This advice is eligible for funding for SMEs via the Initiative Energieeffizienz im Mittelstand as a joint project of the Federal Ministry of Economics and Technology and KfW to develop energy efficiency potential. The seminar qualifies the participants to carry out professional and customer-specific consultations on the energy-efficient use of resources in SMEs.	
TARGET GROUPS ADDRESSED*	Experienced energy consultants, engineers with a focus on energy technology or from the fields of engineering or natural sciences	
DIDACTIC METHOD (classes, workshops, internships)	Presence classes	
DURATION OF COURSE	80 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Successful graduation as energy consultant Academic degree in engineering and 3 years of professional experience in energy consulting	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	TÜV Certificate	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.die-tuev-akademie.de/seminare/energie-umwelt/energiemanagement/energieeffizienzberater-kmu- tuev	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	theoretical course
Knowledge & skills	• Building and energy technology incl. heating • Cooling, lighting, ventilation • Hot water • Building envelope • Machinery incl. cross-sectional technologies • Electric drives • Compressed air and vacuum, pumps • Process cooling • Process heat • Measurement, regulation and control technology • Explanation of the support programme "Energy efficiency in SMEs" • Written examination to obtain the personal certificate

Units of Learning Outcome 2 (ULO)	practical course
Knowledge & skills	• Mengen und Kosten des Ist-Energieverbrauchs • Bewertung des Ist-Zustands • Feststellung der Schwachstellen • Prioritäten zur effizienten Energieanwendung • Konkrete Nennung von Einsparpotenzialen • Vorschlag von Energieeinsparmaßnahmen

GERMANY - code:		G10
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Energy Saving Ordinance	
EQF Level , if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The course provides an overview of the current status of the Energy Saving Ordinance and the effects on the operator obligations for owners, tenants and users.	
TARGET GROUPS ADDRESSED*	Energy management officers and managers, owners of non-residential buildings and persons from manufacturing industries	
DIDACTIC METHOD (classes, workshops, internships)	Webinar	
DURATION OF COURSE	8 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	non	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	TÜV Certificate	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.die-tuev-akademie.de/seminare/energie-umwelt/energiemanagement/energieeinsparverordnung- enev	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1. (ULO)	theoretical course
Knowledge & skills	• Energy law: overview and basics Introduction • EnEV - o Overview, contents - o EnEV requirements and building law classification - o Energy Performance Certificates • Operator obligations - o owners, landlords, tenants and operators - o Obligation of implementation: energy certificates - o Obligation to implement: structural changes according to EnEV specifications - o Obligation to inspect the energy efficiency of air conditioning and ventilation systems - o Further operator obligations from EnEV and other energy law • Outlook on the Building Energy Act • Support programmes

GERMANY - code:	 G11
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Advanced course: Energy evaluation of non-residential buildings DIN V 18599
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	DIN V 18599 is the basis for the energetic evaluation of all types of buildings, especially non-residential buildings in terms of the energy saving regulations.
TARGET GROUPS ADDRESSED*	Energy consultants, architects, planners and engineers (authorised to exhibit according to § 21 EnEV)
DIDACTIC METHOD (classes, workshops, internships)	Presence classes
DURATION OF COURSE	80 hours
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Energy consultants, architects, planners and engineers (authorised to exhibit according to § 21 EnEV)
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	TÜV Certificate
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.die-tuev-akademie.de/seminare/energie-umwelt/energiemanagement/aufbaulehrgang-energetische-bewertung-von-nichtwohngebaeuden-din-v-18599
SPONSORING INSTITUTION (keep track of the source of information)	

Units of Learning Outcome 1 (ULO)	theoretical course
Knowledge & skills	• Reference building methods and general accounting approaches • Zoning and evaluation of energy sources • Energy demand of heating and hot water systems • Energy requirements of air treatment and indoor climate systems • Influence of lighting and control technology on energy requirements • Energetic effects through the use of renewable energies

GERMANY - code:		G12
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Storage technologies for renewable energies	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	qualification to improve knowledge about storage technology to push regenerative energies with regards on load profiles	
TARGET GROUPS ADDRESSED*	manufacturers of wind turbines, public specialist administrations, politicians, electrical installers, specialist planners from the specialist areas, engineers (as an overview and introduction), clerks, finance and banking specialists, accountants, business people and sales specialists (office and field service).	
DIDACTIC METHOD (classes, workshops, internships)	Presence classes	
DURATION OF COURSE	2 weeks full time	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Energy consultants, architects, planners and engineers (authorised to exhibit according to § 21 EnEV)	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Internal certificate or certificate of participation	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://pdf.ibb.com/kursblatt-fuer-berufstaetige/U-183-4.pdf	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	theoretical course
Knowledge & skills	• Introduction and tasks • Physical and chemical basics • Energy Conversion • Requirements for energy source and storage • Overview of memory types • Hydroelectric power stations / storage power stations • Storage for electrical energy / pumped storage power plants • Storage for chemical energy / biomass • Photochemical storage • Storage tank for heat • Non-energy applications

GERMANY - code:		G13
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Municipal energy and climate protection management	
EQF Level , if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	qualification to improve knowledge about storage technology to push regenerative energies with regar profiles	
TARGET GROUPS ADDRESSED*	municipal employees	
DIDACTIC METHOD (classes, workshops, internships)	Presence classes	
DURATION OF COURSE	180 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Energy consultants, architects, planners and engineers (authorised to exhibit according to § 21 EnEV)	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Internal certificate or certificate of participation	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.fortbildung-klimawandel.de/fortbildungen/kommunales-energie-und-klimaschutzmanagem	
SPONSORING INSTITUTION (keep track of the source of information)	Grants are available through the ESF "Fachkurse" support programme of the state of Baden-W We will be happy to advise you on any individual funding opportunities	

Units of Learning Outcome 1 (ULO)	Context
Knowledge & skills	Local climate protection and climate impact adaptation, municipal value creation, basics of energy sup and resource protection, sustainability of the municipality.

Units of Learning Outcome 2 (ULO)	Climate change and climate policy
Knowledge & skills	Scientific basis of climate change, climate protection goals, Climate protection policy Int./EU/National, transformation paths to a climate-neutral community and society.

Units of Learning Outcome 3 (ULO)	Principles of municipal climate protection
Knowledge & skills	Introduction of local government, stocktaking, analysis of potential, Scenarios Development of measures, climate protection concepts, municipal incentive programmes, municipal energy audit, European Energy Award, neighbourhood concepts, energetic neighbourhood management, role of climate protection and Reorganisation

Units of Learning Outcome 4 (ULO)	Legal framework
Knowledge & skills	EU law, climate protection law, municipal energy law, renewable energy law (EEG), building energy la

Units of Learning Outcome 5 (ULO)	renewable energies
Knowledge & skills	Physical and technical basics, basic knowledge of renewable energies (solar, wind, water, bioenergy, combined heat and power generation, storage technologies.

Units of Learning Outcome 6 (ULO)	Energy efficiency
Knowledge & skills	Management of energy consumption in municipal properties, energy and electricity saving advice, ene renovation of existing buildings, Green IT, climate-friendly mobility change

Units of Learning Outcome 7 (ULO)	Energy procurement and contracts
Knowledge & skills	Municipal energy supply, key players in the municipal energy system transformation (e.g. municipal uti citizens' cooperatives), design paths for municipal electricity and heat transformation, heating networks

Units of Learning Outcome 8 (ULO)	Subsidies and financing
Knowledge & skills	Promotion of municipal climate protection, state and federal support programmes, Citizen participation facilities, contracting, project financing, EU funding programmes

Units of Learning Outcome 9 (ULO)	Public relations and climate communication
Knowledge & skills	Basics of communication, moderation and presentation, new ways of climate communication and psyc anchoring climate protection as a common task, citizen participation, school projects and adult educati

Units of Learning Outcome 10 (ULO)	Fundamentals of climate adaptation
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Knowledge & skills	Global and regional climate analyses, climate adaptation concepts and strategies, fields of action in cli adaptation (e.g. settlement planning, green and open space planning, building adaptation, summer the insulation, air conditioning and refrigeration technology), climate adaptation measures in the city and r
Units of Learning Outcome 11 (ULO)	Introduction of project management
Knowledge & skills	Basics of project management, project description and definition, environment and risk analysis, work structure, project control, project documentation, project acceptance.
Units of Learning Outcome 12 (ULO)	Project work
Knowledge & skills	The independently chosen topics of the project work accompanying the course should, as far as possi from everyday life in the community and are supervised by experienced lecturers. The project docume a presentation with a final discussion are part of the final examination.

3 ANNEX – PROFESSIONAL QUALIFICATIONS OF HUNGARY

Hungary - code:		H01
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Building engineer technician	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	, Organizes commissioning, adjustment, handover activities, Prepares and carries out activities related operation of the facility, Plan and manages maintenance tasks, Plan and organizes repair tasks, Review create and edit detailed plans, Makes the offer, it prepares the undertaking, Prepares construction and work, Directs construction and installation work, Plans and organizes the transformation and retrofitting and organizes demolition, waste management and recovery tasks, Performs general administrative ac	
TARGET GROUPS ADDRESSED*		
DIDACTIC METHOD (classes, workshops, internships)	Theory: 70 %, Practice: 30 %	
DURATION OF COURSE	1 year	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	graduate student	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	none	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Uniform Classification of Occupations, 3129	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	Government law:,, – a közoktatásról szóló 1993. évi LXXIX. törvény,, – a szakképzésről szóló 1993. évi törvény,, – a gazdasági kamarákról szóló 1999. évi CXLI. , törvény, , Decree(s), a 10/2007. (II. 27.) S rendelet az Országos Képzési Jegyzékről és az Országos, Képzési Jegyzékbe történő felvétel és törlés rendjéről szóló 1/2006. (II. 17.) OM, rendelet módosításáról,, a szakképzés megkezdésének és folytat feltételeiről, valamint a térségi integrált, szakképző központ tanácsadó testületéről szóló 8/2006. (III. 2 rendelet,, az iskolai rendszerű szakképzésben részt vevő tanulók juttatásairól szóló 4/2002. (II. 26.), O a szakmai vizsgáztatás általános szabályairól és eljárási rendjéről szóló 20/2007. (V. 21.), SZMM rend Building engineer technician decree (No.), , az 54 582 03 0000 00 00 Magasépítő technikus szakképe szakmai és vizsgakövetelményeit tartalmazó szakképesítésért felelős miniszteri rendelet,	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	Examples:., http://www.matrixoktatás.hu/epuletgepesz-technikus.html , http://kepzes.hidro.hu/felnottkep/kepzes/epuletgepesz	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	General mechanical technology tasks I. (mechanic)
Knowledge & skills	Knowledge; ; Studies and interprets documents related to the subject and purpose of the work; Create mechanical engineering drawings; Prepares an operation and installation plan for the preparation of si and structural units; Prepare the task, materials, consumables, prefabricated parts, machines, tools, m instruments, gripping and clamping devices, transport and lifting equipment, protective equipment, per protective equipment; Sketch as needed based on documentation; Study and interpret documentation processes, tools, technologies; Study and interpret general mechanical materials and parts informatio technical tables, product catalogs; Determines the amount of material required; Performs basic meas mechanical engineering (length, angle, perpendicularity, etc.); Performs shape and position accuracy measurements with general tools; I shape the workpiece with basic hand cutting procedures (sawing, threading, countersinking, reaming, hand tool sharpening); Performs plastic forming with basic manua (stretching, straightening, bending, etc.); Cuts by manual and machine operations (cutting, biting, shea punching); Shape the workpiece by manual machine procedures (cutting, drilling, surface cleaning, ha sharpening, etc.); Contributes to the implementation of quality assurance tasks; ; C Basic typographic C Plane geometric edits; D Representation modes; B Reading, interpreting and making technical draw Reading, interpreting and making diagrams; Use of standards; Interpretation of manufacturing instruct manual, operating, installation, maintenance instructions; C Measurement instructions; ; C Mechanical of industrial materials; C Thermotechnical properties of industrial materials; C Electrical properties of i materials; C Corrosion properties of industrial materials; C Technological properties of industrial mater characteristics of industrial materials; D Relationship between microstructure and properties; C Industr ferroalloys and their properties; C Light metal alloys and their properties; C Non-ferrous metal alloys a properties; C Effect of alloys on material properties; C Standard industrial ferro - alloys; C Standard lig alloys; C Standard non-ferrous alloys; B Knowledge of technical measurement tools; B Measuring and length dimensions; B Measuring and checking angles; B Measurement and control of shape and posit accuracy; ; ; Skills; ; 3 Understanding read text; 3 Understanding heard text; 2 speaking; 1 Understan text in a foreign language; 3 Management of information sources; 4 Reading and interpreting a mecha drawing; 2 Preparation of mechanical parts drawing; 3 Freehand sketching; 2 Reading and interpretin 3 Management of technical tables; 4 Use of mechanical measuring instruments; 5 Use of metalworkin and small machines; 5 Use of work safety tools and equipment; 3 Use of other measuring instruments Competences; ; Accuracy; self-sufficiency; Ability decisions; Responsibility; space Vision; Regulatory

Units of Learning Outcome 2 (ULO)	General mechanical work, accident, fire and environmental protection tasks
Knowledge & skills	Knowledge; ; Observes and complies with other regulations concerning work, accidents, fire and enviro protection, as well as the profession, installation and repair technology; Participates in the investigatio documentation of incidents related to work, fire and environmental protection; Provides first aid and fir equipment; Indicates fire, participates in vaccination; Design the workspace according to the rules; Ad adheres to the rules of selective and hazardous waste collection; Adheres to and adheres to regulatio handling of hazardous materials; Participates in the rescue, provides first aid; ; ; A Environmental Prot Fire protection; A Safety; A Firefighting equipment; A Fire damage notification; A First aid; C Rules of ; 5 Use of work safety tools and equipment; 3 Management of information sources; 2 Writing skills, wo writing; 5 Interpretation of symbols related to occupational safety; 5 Interpretation of color markings rel occupational safety; 4 First aid; ; ; Competences; ; Accuracy; self-sufficiency; Ability decisions; Respo Regulatory compliance; Sturdiness; Management skills; Ability to review; Attention-focusing; Organizin Essence recognition (essence vision); Caution, caution; Design ability;

Units of Learning Outcome 3 (ULO)	Basic tasks of building engineering
Knowledge & skills	Knowledge; ; Study and interpret documents related to the object, purpose, materials, technologies of engineering (design documentation, manuals, standards, technical tables, product catalogs); Performs electrical measurements (DC and AC voltage, current, resistance, frequency, phase); To check the co protection of the power supply to the power supply, to apply voltage to the equipment necessary for op Makes a general anti-corrosion coating on a metal structure; Assesses the general condition of machi and machine unit, establishes basic faults; Assembles (repairs, maintains) simple static frame structur Manufactures, disassembles, repairs, removable joints and securing elements, screw, shaft and pipe j swap engineering structures; Makes, breaks, repairs, replaces insoluble joints (rivet, shrink, glued); M repairs, brazed and soldered joints; Produces a general quality welded joint with coated electrode man welding; Produces a general quality welded joint by gas welding; ; B Basic concepts of machine drawi characteristics of mechanical drawings, rules of interpretation and preparation; C Apply planar editing C Usual fields of application of representation methods, preparation rules; C Knowledge of welding dr symbols, seam drawings; C Interpretation of electrical, piping and control drawings; C The usual rules interpretation and preparation of diagrams and characteristic curves; C Standards, operating instructio structure of manuals, content characteristics; A The concept of general building services units, their us measurements and calculations; B Concept, conversion, use of other units of measurement in measur calculations; ; ; Skills; ; 2 Basic electrical installation and measuring tools; 4 General hand assembly to Plumbing hand tools; 3 General small handheld machines; ; ; Competences; ; Stable hand position; Pr chic; Interpersonal skills; Formulation skills; Public Clarity; Compliance behaviour; Systematic work;

Units of Learning Outcome 4 (ULO)	Combustion and ventilation engineering tasks
Knowledge & skills	Knowledge; ; It connects the electrical equipment to the control cabinet, control and regulation units; C correct direction of rotation of electric motors, fans, pumps and, if necessary, the current consumption transport capacity; It checks the touch protection and energizes the equipment required for operation; correct operation of the safety and control elements; Sets the ventilation system control and regulation required parameters; Checks the secure fastening and strength of the mechanical connections; Inspe and artificial ventilation systems, checks the adequacy of air supply and flue; It installs the ventilation e installs the air heater and air cooler; Hand over the installed equipment; Performs building engineering measurement; Document measurement data during a trial run, perform administrative work related to activities; In special circumstances, he draws attention to the need to obtain permits from the authoriti building, protected façade, noise, ambient air condition, etc.); It negotiates and obtains information fro operator and user; ; ; A Basics of combustion technology; C Knowledge of flue systems, installation a construction rules; C Structural and operational characteristics of solid combustion equipment, fault ph Structural and operational characteristics of gas and oil burners, fault phenomena; C Application of co instruments, operating characteristics; C Combustion engineering measurement knowledge; A Safety of combustion equipment; A Environmental effects of combustion plant operation; ; Skills; ; 5 Interpret combustion symbols and color markings; 4 Understanding read professional text; 4 Understanding he professional text; 4 Interpretation of technical tables; 4 Use of measuring instruments; 4 Use of safety Competences; ; Responsibility; Reliability; Precision; ; Public Clarity; Feedback skills; Grammar; Mana skills; ; ; Troubleshooting (diagnosis); Exploring the causes; Ability to review; Organizing ability; Cautio Compliance behaviour;

Units of Learning Outcome 5 (ULO)	Management, planning, control tasks
	Knowledge; ; ; By department (water supply and sewerage, gas supply, central heating, air and air-co technology) it reviews the system components, their operation, design, selection methods, installation regulations.; Review, verify and supplement various building engineering design documentation, prepare make necessary detailed and workshop plans; Check the contents of the technical description, if necessary consultation with the planner, make an addition; Processes and supplements the operation and maintenance instructions; Creates a budget and an offer for the workflow; Prepare implementation, determine materials used depending on installation technologies, range of suppliers, etc.); Prepare network and schedule, assurance documentation, sample, property and fire protection plan; Agrees with the client, orders the negotiates, prepares the takeover of the work area; Plans and manages operational tasks; Directs construction work; Takes over the workspace; ; C General construction knowledge; C Content and form requirements building engineering design documentation; C Knowledge of building engineering design documentation; Preparatory work for construction; C Business contract; C Work organization: network and schedule; professional trade; C Basic use of standards; A General knowledge of accident, work, fire and environmental protection in building services work; C Basic knowledge of labour law and organization; C Basic economic knowledge; C Basic organizational, management and operation skills; C The most basic features of civil contracts; ; Skills; ; ; 2 word editing; 2 Spreadsheets; 3 Using a building services CAD program; 3 Possibility of comprehension of colloquial text; 3 Common language skills; 4 Comprehension of heard text in professional language; 3 Proficiency in professional language; 4 Understanding read professional text; 3 Professional writing skills, wording in writing; 2 Understanding read text in a foreign language; 3 Interpretation and understanding of machine usage inscriptions in foreign languages; 3 Management of information sources Competences; ; ; Responsibility; Reliability; ; Consensus Skills; Skill of compromise; Management skill Willingness to cooperate in the work; ; Ability to review; Organizing ability; Ability to infer; Troubleshooting (diagnosis); Exploring the causes;

Units of Learning Outcome 6 (ULO)	Civil engineer technician tasks
	Knowledge; ; ; Check the condition of ladders, scaffolding, walkways and, if necessary, arrange for the replacement and repair; Designates pipeline routes; To carry out wall breaking, wall engraving, repair work, to initiate master builder restoration work; It sketches for the placement and installation of equipment devices; Prepares (prepares) and installs individual holders, mounting two supports, stands, machine basis of a design; It installs heavy-duty units; To review the mechanical equipment of household, common kitchen, laundry and heating equipment and systems, to check the supply network, elements, operation design; It installs building engineering equipment, equipment and machines; Review available energy (primary, secondary, renewable), their properties; Check gas and oil supply systems, their elements, operation design; Performs a variety of pipe installation work with a variety of piping procedures; Performs a pressure strength tightness test; Performs instrumental diagnostic diagnosis; Review the systems of the connected secondary network (central heating, district heating), their elements, operation, design; Review the natural and artificial ventilation systems, control air supply, flue gas drainage; It installs boilers, flue gas system, flue gas extraction equipment; ; ; C Aspects of the design of water supply and sewerage system operational characteristics; C Aspects of central heating, operating characteristics; C Gas supply system aspects of gas consumption equipment, operational characteristics; C Aspects of the design of ventilation conditioning systems, operating characteristics; C Aspects of the development of building electrical and supervision systems, operational characteristics; A Safety knowledge of assembly scaffolding, operation ladders; B Piping installation; C General construction knowledge; B Knowledge of structural units of building static evaluation; B Thermal properties of building structures; C Statics of supports; B sheet metal form materials, pipe structures, fittings, profiles; C Masonry knowledge; A Safety technology for moving large loads Skills; ; 4 Reading and interpreting a mechanical drawing; 3 Making a mechanical drawing; 3 Reading interpreting a construction drawing; 2 Construction drawing; 3 Interpretation of reading electrical and control network drawings; 2 Preparation of electrical and control network drawings; 4 Reading and interpreting engineering piping drawings; 3 Preparation of building engineering piping drawings; 2 Reading and interpreting flowcharts; 1 Creating flowcharts; 3 Reading and interpreting a diagram; 2 Filling and making a diagram numeracy; 3 quantity Sense; ; Competences; ; balance Detection; movement Coordination; ; Willingness to cooperate in the work; consensus Skills; Skill of compromise; ; Systematic work; Caution

Hungary - code:		H02
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Building energy assessor	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Scope of regulations on energy requirements and certification; Criteria for the internal environment; Methods for calculating the energy demand of buildings, building boundary structures and building engineering systems; Identification of building engineering systems, energy-conscious modernization, calculations of primary energy demand for each system, calculations of profit flows from the building's energy system, operating advice; Energy quality of the building, certification system; ; Thermotechnical identification and energy-conscious renovation of existing building boundary structures; Estimation of the number of air exchange for buildings, determination of the specific heat loss factor; Energy quality classes, classification rules; Documentation of certification;	
TARGET GROUPS ADDRESSED*	graduate architect; graduate settlement engineer; Certified architect; degree in transport engineering; mechanical engineer; degree in electrical engineering; degree in energy engineering; architect; township engineer; architect; traffic engineer; hydraulic engineer; traffic engineer; Mechanical engineer; electric engineer; energetics engineer	
DIDACTIC METHOD (classes, workshops, internships)	: 40 + 5 hours (theoretical and practical preparation);	
DURATION OF COURSE	40 + 5 hours;	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	none	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	none	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	none (individuals need to register themselves at the Chamber of Engineers)	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	176/2008.(IV.30.) regulation; 3. annex , 266/2013. (VII. 11.) decree (Chamber exam)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://bfocus.hu/epuletenergetikai-tanusitoi-jogosultsagi-kepzes; ;	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	
Knowledge & skills	Thermal bridge, heating limit temperature; Radiation heat gains; Practical certification by calculation; Practical certification using the winwatt method; Numerical examples of building physics (heat transfer coefficient, thermal insulation); Building energy numerical examples (specific heating energy demand, primary energy demand for hot water supply); Building engineering numerical examples (energy demand of ventilation system, energy demand of condominiums in case of different heat supply methods); Numerical examples of economic issues (specific heat loss factor and changes in fuel consumption due to energy-saving interventions)

Hungary - code:		H03
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Construction technician	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Participates in investment work; Prepares the construction processes and works; Participates in the preparations for the construction work; Participates in the execution of construction work processes; Directs preparatory construction work; Manages and controls construction processes; Performs administrative and completion tasks	
TARGET GROUPS ADDRESSED*		
DIDACTIC METHOD (classes, workshops, internships)	Theory: 60%; Internship: 40%	
DURATION OF COURSE	1 year	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	graduate students; medical check	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	none	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Uniform Classification of Occupations; 3123	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	Government law;; – a közoktatásról szóló 1993. évi LXXIX. törvény;; – a szakképzésről szóló 1993. évi LXXVI. törvény;; – a gazdasági kamarákról szóló 1999. évi CXLI. törvény;; Decree(s); ; a 10/2007. (II. 27.) SZMM rendelet az Országos Képzési Jegyzékről és az Országos Képzési Jegyzékbe történő felvétel és törlés eljárási rendjéről szóló 1/2006. (II. 17.) OM; rendelet módosításáról;; a szakképzés megkezdésének és folytatásának feltételeiről, valamint a térségi integrált; szakképző központ tanácsadó testületéről szóló 8/2006. (III. 23.) OM rendelet;; az iskolai rendszerű szakképzésben részt vevő tanulók juttatásairól szóló 4/2002. (II. 26.) OM rendelet;; a szakmai vizsgáztatás általános szabályairól és eljárási rendjéről szóló 20/2007. (V. 21.) SZMM rendelet;; ; Construction technician decree;; ; az 54 582 03 0000 00 00 Magasépítő technikus szakképesítés szakmai és vizsgakövetelményeit tartalmazó szakképesítésért felelős miniszeri rendelet	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	Examples;; http://geniuszplusz.hu/tanfolyamok/muszaki-kepzesek/magasepito-technikus https://bkszc.hu/kepzes/54-582-03-magasepito-technikus-2/	
SPONSORING INSTITUTION (keep track of the source of information)	-	

Units of Learning Outcome 1 (ULO)	Construction "common" tasks
Knowledge & skills	Knowledge;; ; Surveys the work area and conducts site visits; Assess the feasibility of the work task over time, plan the work process; Calculates material requirements; Provides the necessary materials, tools, machines; Checks the materials used; Finds - to the work area - the right tools and manpower; Consult with the designer, representatives of other professions involved in the construction, a customer; Hands over or takes over the work or work area; Performs on-site measurements; Interprets construction and technology plans; Based on the plans, he occasionally makes a sketch; Checks the product of a preventive workflow; Leaving workspace with tools; Ensures that the work area is kept clean at all times; Collects and professionally stores the generated waste; Provides professional storage of materials and tools; Keeps a diary appropriate to your job; Participates in occupational safety, safety, fire and environmental education; Checks occupational safety equipment; Use (provide) the required safety equipment; It ensures the order, accident-free and protection of the work area; Observes special occupational safety regulations; It assesses hazards and health hazards; In the event of an accident or emergency, you will take action in accordance with your job; Complies with monument protection, environmental protection and other legislation, technical the relevant provisions of this Regulation; It takes the necessary action in relation to the pollution that has occurred; Participates in the compilation of invoices;; ; C Quantification of material; C Order documents; C Shipping; C Conditions for starting work; B Workspace handover rules; C Document the work performed; B Waste management; B Quantity of material, calculation of material requirements; C Construction schedules (session, headcount schedules); C Construction documentation (construction log, survey log); Occupational safety and accident prevention regulations; B First aid; B Fire protection; Storage, transport and handling of flammable materials; C Regulatory information; Use Protective Clothing; B Environmental protection;; ; Skills;; ; 1 Basic computer use; 3 Basic numeracy; 3 Understanding a common language text you read; 3 Common language skills; 4 Reading and interpreting construction schedules; 4 Interpretation of architectural symbols; 4 Reading and interpreting the construction plan; 5 Use of individual and group work safety tools and equipment;; ; Competences;; ; Accuracy; precision; organizing Skills; Interpersonal flexibility; helpfulness; Ability to review; Organizing ability; Numerical thinking, math skills

Units of Learning Outcome 2 (ULO)	Preparation for construction
Knowledge & skills	Knowledge;; ; Get in touch with the designers; Order material and structural elements; It invites quotations from the participating construction partners; Controls work area approach, work performance and occupational safety; perspective; Organizes the procession to the work area; Helps the work with his professional advice, directs the workers; It keeps in touch with the people involved in the construction; Organizes and manages dewatering work; Manages the earthworks; Manages pounding and pit protection tasks; Coordinates technical work; Manages landscaping work; Provides continuous cleaning of the work area; Organizes work and accident prevention training for workers; Keeps records; Handles problems during construction; Eliminate parade buildings;; ; B Soil mechanics; B Priming; B Earthworks, landscaping; The Fire Police Regulations; B Contact with client, investor; B Labor register administrative requirements; Regulations for the organization and holding of accident prevention education; B Rules and regulations for communication with employees and subordinates; B Masonry work; B Roofing and insulation work; B Paving work; B Drainage; B Demarcation of a working pit; B Documentation of external relations (correspondence, invoices, permits, etc.); B Definition of working conditions; B Recording requirements for daily tasks; B Recording accidents, incidents; B Finished work documents (quantities); Work overhead; Work in the Work Pit; Work on the Stand; Working with Electrical Tools;; ; skills;; ; 2 ECDL 3. m. word editor; 2 ECDL 4. m. Spreadsheets; 2 ECDL 5. m. Database management; 4 Writing common language text in writing; 4 Listening comprehension of colloquial text; 4 Common language skills; 4 Understanding a read professional text; 4 Professional language skills, writing in writing; 4 Understanding audible text in professional language; 4 Proficiency in professional language; 5 Interpretation of safety, accident prevention and fire control symbols; 5 Using emergency tools;; ; Competences;; ; Stamina; Space Vision; Responsibility; Ability decisions; precision; Organizing Skills; Interpersonal flexibility; Consensus skill; Management skills; Skill of compromise; Logical thinking; Troubleshooting (diagnosis); Problem solving, troubleshooting; Essence recognition (essence vision); Practical task interpretation;

Units of Learning Outcome 3 (ULO)	Construction management/implementation
Knowledge & skills	Knowledge; ; Prior to the work, he performs design tasks; It sets out the routes of utilities; Lay out the edifice; Coordinates formwork work; Checks, checks the fittings; Schedule concreting work; It designs, sets up and continuously supervises the operation of auxiliary plants; Directs and supervises the concreting work; Prepare test specimens and take samples for quality control; After concreting, it checks the dimensional and shape accuracy; Provides winterization and after-treatment of concrete; Cancels winterization, designates the demolition controller; Controls the construction and demolition of construction auxiliary structures; Directs the installation of prefabricated structures; Directs and supervises the construction of load-bearing structures; Directs and supervises the construction of non-load-bearing structures; Directs and supervises the assembly of the prefabricated roof structure; Controls the installation of the lightweight structure; Controls the installation of the stair structure; It continuously supervises the performance and protection of water, heat and sound insulation work; ; B Prefabricated structures, building units; B Waterproofing; Planning Demolitions; B Structures of special material (tarpaulin, glass); B Auxiliary plants required at the construction site (mortar plant, etc.); B Construction machine chain installation; B Rules and regulations for communication with employees and subordinates; B Scaffolding work; B Masonry work; B Concreting works; B Prefabrication; B Roofing and insulation work; B Paving work; B Thermal and sound insulation; B Drainage; B Demarcation of a working pit; B Substructure waterproofing; B Foundation construction technologies; B Piping technologies; B Formwork work; B Ironwork; C Joinery work; C Dry construction technologies; C Glazing works; C Locksmith work; B Documentation of external relations (correspondence, invoices, permits, etc.); B Definition of working conditions; B Laboratory protocol data; B Order quality checks / document results (specimen, etc.); Demolition work; Work overhead; Work in the Work Pit; Work on the Stand; ; Skills; ; 5 Orientation; 5 Space detection; 5 Using marking tools; 4 Using building materials laboratory equipment; 4 Reading and interpreting laboratory protocols; ; Competences; ; Stamina; balance Detection; space Vision; Responsibility; Ability decisions; Precision; Interpersonal flexibility; Consensus Skills; Management skills; Skill of compromise; Logical thinking; Troubleshooting (diagnosis); Problem solving, troubleshooting; Essence recognition (essence vision); Practical task interpretation; more results

Units of Learning Outcome 4 (ULO)	Construction design
Knowledge & skills	Knowledge; ; Obtain the necessary regulatory approvals; Edits plans under control; It prepares a budget under management; Participates in the compilation of design documentation; Coordinates construction and organizational plans; Controls the fencing of the construction site; Organizes and manages the construction of temporary energy supply and utilities; Designates, builds, orders temporary structures for construction; Designates, provides transportation routes within the construction site and connects to with an external road network; Coordinates the necessary resources (manpower, machine, material); Assess the work done; Organizes the handover procedure; ; B Building structure; B Strength, statics; B Building physics, thermal engineering; B Prefabricated structures, building units; B Building materials; B Monument protection; C Design of temporary structures; B Organization (parade-march); B Determining Temporary Energy Needs; B Need for changing rooms and other social facilities; C Storage instructions; C Means of transport within the construction site; C Road and rail transport; C Organizational structure (eg construction manager-work engineer-foreman); B Liaison with the authorities; B Rules and regulations for communication with employees and subordinates; B Rules for making quotations; B Budgetary knowledge; Determining Quantities, Mathematical Operations; B Tax knowledge (VAT); B Construction machinery (crane, etc.); B Demarcation of a working pit; B Documentation of external relations (correspondence, invoices, permits, etc.); B Definition of working conditions; B Recording requirements for daily tasks; B Recording accidents, incidents; B Keeping a work area acceptance protocol; B Finished work documents (quantities); B Finished job handover protocol; B Material quality assurance system; Working with Electrical Tools; Material transport, load capacity; Working in a noisy, dusty area; Working with Hazardous Materials; B Continuous work, rest time; B Cleaning; B Waste management; B Hazardous waste treatment and storage; ; Skills; ; 2 ECDL 1. m. IT basics; 2 ECDL 3. m. word editor; 2 ECDL 4. m. Spreadsheets; 2 ECDL 5. m. Database management; 2 ECDL 7. m. Information and communication; 3 ECDL Image Editing; 3 ECDL CAD; 4 Comprehension of common language text read; 4 Writing common language text in writing; 3 Handwriting; 4 Listening comprehension of colloquial text; 4 Common language skills; 4 Understanding a read professional text; 4 Professional language skills, writing in writing; 4 Understanding audible text in professional language; 4 Proficiency in professional language; 3 Understanding reading text in a foreign language; 3 Writing in a foreign language; 3 Handwriting in a foreign language; 3 Comprehension of heard text in a foreign language; 3 Proficiency in a foreign language; ; 3 Making a call in a foreign language; 4 Managing information sources; 5 Reading and interpreting an architectural drawing; 4 Preparation of architectural and technical drawings; 4 Reading and interpreting construction plans and drawings; 5 Interpretation of safety, accident prevention and fire

Hungary - code:		H04
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	environmental technician	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Apply professional standards; Keep a record; Provides data; Participates in the preparation of plans; Performs measurements, evaluates; Participates in the design and operation of EMAS and EMS; Performs a maintenance management task; He's in control; He participates in education and training; He keeps in touch; Performs material and asset management; Participates in regulatory proceedings; Participates in tender work; He is involved in the operation of energy technologies; He is involved in the operation of energy equipment; Checks environmental equipment and emissions; Performs energy and environmental calculations; Performs and evaluates energy and environmental measurements; Defines the characteristics of wastes; Operates and manages waste management equipment; Performs and manages operational work; He is involved in damage repair work; Keeps waste management documentation; Performs soil cleaning, directs; Operates and inspects the industrial wastewater treatment equipment; Operates and checks air quality protection equipment; It handles and manages production waste; ; Operates and checks auxiliary equipment; Takes over the samples to be tested; Prepares the measurement, the examination; Performs sample testing; Performs on-site measurements and inspections; Evaluates the measurement data; He is doing finishing work; He is involved in the operation of nuclear technologies; He is involved in the operation of nuclear facilities; It controls the environmental protection equipment and the radioactive load of the environmental elements; Makes status assessments; It contributes to the establishment of water management facilities; Participates in the operation of water management facilities; Participates in water utilization tasks; Performs industrial water management tasks	
TARGET GROUPS ADDRESSED*		
DIDACTIC METHOD (classes, workshops, internships)		
DURATION OF COURSE		
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*		
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	General environmental tasks
Knowledge & skills	It monitors changes in professional legislation and standards; Inform your staff about changes in legislation and standards; Prepares, gives opinions on draft legislation or environmental internal; instructions; It records pollutant emissions; Records environmental data; Records contaminated areas; Keeps material and asset records; Prepares official declarations; Produces environmental reports; Participates in the preparation of plans required by law; He is involved in the preparation of internal professional plans; He is involved in the preparation of business plans; He is involved in making emergency plans; Measures and evaluates physical characteristics; Measures and evaluates chemical properties; It measures and evaluates biological characteristics; It measures and evaluates radiological characteristics; It measures and evaluates meteorological characteristics; Performs geodetic measurements; Performs noise measurement; Performs and evaluates hydrographic measurements; Performs and evaluates flow measurements; It measures and evaluates basic electrical characteristics; Uses bioindication; It is involved in maintaining a built environment; Performs waste management tasks; Performs water quality protection tasks; Performs environmental inspections; He participates in and holds external education and training; He participates in and holds internal education and training; Participates in the preparation of information materials; He liaises with environmental and nature protection authorities; He liaises with professional and non-governmental organizations; It compiles material and tool requirements; It procures materials and equipment; Participates in an on-site inspection; He will attend a hearing; He draws up a report; He participates in the search for experts and authorities; He participates in the preparation of applications; He participates in the implementation of tenders; ; Skills; ; 2 ECDL 3. m. word editing; 2 ECDL 4. m. Spreadsheets; 2 ECDL 5. m. Database management; 2 ECDL 6. m. Presentation; 2 ECDL 7. m. Information and communication; 4 Comprehension of common language text read; 4 Writing common language text in writing; 4 Handwriting; 4 Listening comprehension of colloquial text; 4 Common language skills; 4 Understanding a read professional text; 4 Professional language skills, writing in writing; 4 Understanding audible text in professional language; 4 Proficiency in professional language; 3 Understanding reading text in a foreign language; 3 Comprehension of heard text in a foreign language; 3 Typing; 4 Managing information sources; 4 Reading and interpreting a topography; 3 Create a topography; 4 Reading and interpreting an architectural drawing; 3 Reading and interpreting electrical and mechanical drawings; 3 Reading and interpreting flowcharts; 3 Creating flowcharts; 4 Reading and interpreting a diagram; 4 Filling and making a diagram; 4 Recognition of safety symbols; ; 5 Basic numeracy; 5 Quantity sense; 5 Use of measuring instruments; 4 Using laboratory equipment; 4 Operating machines; 5 Using safety equipment; 4 Using office equipment; ; ; Competences; ; C The branches and functions

Units of Learning Outcome 2 (ULO)	Tasks of an environmental technician
Knowledge & skills	Knowledge; ; Registers system parameters; Registers hazardous substances; Participates in environmental impact assessment and environmental review; in the provision of information necessary for the procedures; Participates in the evaluation of business offers; It monitors the requirements of the best available technology (BAT); Obtain and record safety data sheets; Participates in emission sampling and measurements; Participates in the development of the EMS system; Participates in the preparation of the certification; Participates in the continuous review and development of the system; Checks contaminated areas; It counts fines; Participates in commissioning procedure; ; Skills ; ; 4 Understanding a read professional text; 4 Professional language skills, writing in writing; 4 Understanding audible text in professional language; 4 Proficiency in professional language; ; Competences; ; C Rules for measuring environmental impact; C Soil loading technologies; C Water loading technologies; C Air pollution technologies; C Environmental noise loads; B Rules for recording technological parameters; B Rules for the registration of dangerous substances; B Rules for the registration of safety data sheets; C Market, financial basics; C Environmental impacts of industrial production; C Environmental fines; C Environmental impact assessment; B Environmental Management System (EMS); C Best Available Techniques (BAT); ; Personal competences; ; Commitment, commitment; Reliability; precision; Skill compromise; Public Clarity; Ability to evaluate;

Units of Learning Outcome 3 (ULO)	Energy environmental tasks
Knowledge & skills	Knowledge; ; Involved in the operation of a coal-fired power plant; Involved in the operation of an oil and gas fired power plant; Participates in the operation of a wind farm; Participates in the operation of a solar power plant; Participates in the operation of a hydroelectric power plant; It is involved in the operation of a biomass power plant; Operates and controls geothermal technology; It makes suggestions for upgrading the technology; It makes proposals for recycling (waste energy, condensate, flue gas; heat content, etc.); Participates in machines and equipment for thermal energy production and conversion; (boilers, heat exchangers, recuperators, regenerators, pumps,; fans, compressors, refrigeration equipment); Participates in the operation of power plants (internal combustion engines, hydropower,; reciprocating steam engines, steam turbines, gas turbines, wind turbines); Participates in the operation of power generators and electric motors (DC; generators, dc motors, ac generators, ac motors,; asynchronous motors, synchronous motors, special electric motors); It makes suggestions for the possibilities of electricity distribution; Participates in the operation of transformers; Makes suggestions for machines and equipment used in the field of energy environment to reduce its harmful effects; Checks the operation of flue gas cleaning equipment; Checks the operation of water treatment structures; Controls waste management and waste management; Checks noise emissions; It makes proposals to reduce emissions; It determines the combustion theory characteristics (specific oxygen, combustion air, specific; flue gas volume, flue gas composition, combustion efficiency); Performs heat quantity calculations; Calculates the mass flow and concentration of emissions; Prepares material and energy balance; It calculates environmental fines; It measures the physical and chemical properties of power plant coal; Measures the physical and chemical properties of oils; Measures the characteristics of energy waters; Takes flue gas sample; Measures the amount and composition of flue gas; It evaluates its measurement results; He liaises with the authorities; He liaises with professional and non- governmental organizations; It complies material and tool requirements; It procures materials and equipment; Participates in an on-site inspection; He will attend a hearing; He draws up a report; He participates in the search for experts and authorities; He participates in the preparation of applications; He participates in the implementation of tenders; ; Skills ; ; 4 Understanding a read professional text; 4 Professional language skills, writing ; 4 Understanding audible text in professional language; 4 Proficiency in professional language; 4 Interpretation of occupational safety symbols; 4 Using energy equipment; ; Competences; ; ; C Fossil fuels; B Renewable energy sources; C Transport and storage of energy carriers; B Operation of power plants; B Power generation and conversion machines; C Power machines; C Generators, motors; C Electricity distribution; C Transformers; B Dust collectors; C Gas cleaners; C Sewage treatment plants; C Combustion theory calculation; C

Units of Learning Outcome 4 (ULO) Knowledge & skills	Waste management tasks Knowledge; ; ; Participates in waste sampling; Determines the amount of waste; Waste measures physical and chemical properties; Participates in waste classification; Operates and manages preparation equipment; Operates and controls physical treatment equipment; Operates and controls chemical treatment equipment; Operates and controls composting equipment; Operates and manages biogas production equipment; Operates and controls thermal treatment equipment; It operates and manages a waste yard; It operates and manages a transshipment station; It operates and manages a sorting plant; It operates a landfill and takes care of it; It operates and manages a composting plant; It operates factory collection points and storage facilities; Contributes to the elimination of illegal landfills; Participates in reclamation work; It operates and controls the monitoring system; Keep a record; Provides data; Fills in SZ and K accompanying tickets; Makes a material balance; It calculates a waste fine; Provides repair and periodic maintenance of tools and instruments; ; Skills; ; ; 4 Understanding a read professional text; 4 Understanding audible text in professional language; 4 Proficiency in professional language; 4 Professional language skills, writing in writing; 4 Reading and interpreting occupational safety symbols; 4 Use of waste recovery equipment; 4 Use of waste disposal equipment; ; Competences; ; C Special rules for waste sampling; B Method of determining the amount of waste; Requirements for determining the physical characteristics of waste; B Requirements for determining the chemical properties of waste; C Waste classification rules; B Method and rules of separate waste collection; B Rules for the operation of separate collection facilities; C Administration related to separate waste collection; C Tasks of waste transfer stations; C Tasks of waste sorting plants; C Tasks of composting plants; C Tasks of landfills; C Types of waste shredders, their application; C Principle of operation of waste compaction equipment; C Waste phase separation methods; C Waste component separation technology; C Waste embedding technologies; C Chemical processes for waste treatment; C Electrochemical methods of waste treatment; C Other waste treatment procedures; C Composting technologies; C Biogas production technology; C Waste incineration technology; D Thermal decomposition technology; ; Personal competences; ; self-sufficiency; Stamina; organizing Skills; Sturdiness; situation awareness; Numerical thinking, math skills;
Units of Learning Outcome 5 (ULO)	Environmental equipment operator tasks Knowledge; ; ; Contributes to the localization of soil pollution; He changes the soil, controls it; Operates soil aeration equipment; Operates soil washing equipment; Operates biological soil treatment equipment; Controls the maintenance of the operating sewer network; Operates and inspects the mechanical equipment of the sewer system; It operates and inspects the equipment of mechanical wastewater treatment; Operates and inspects biological wastewater treatment equipment; It operates and inspects the equipment of chemical wastewater treatment; Operates and monitors sludge treatment system; Operates and inspects dust separation equipment; Operates and inspects washing towers; Operates and inspects adsorption equipment; Operates and controls oxidation equipment; Collects and collects production waste; Records production waste; It prepares the production waste for delivery; Operates and inspects pumps; Operates and inspects blowers and compressors; Operates and inspects temporary pipeline networks; Operates and inspects power generation equipment; ; Skills; ; 4 Understanding a read professional text; 4 Understanding audible text in professional language; 4 Proficiency in professional language; 4 Professional language skills, writing in writing; 4 Use of environmental protection equipment; ; Competences; ; ; C Technical solutions for pollution control; C Rules for the installation of in situ soil cleaning equipment; C Operating instructions for in situ soil cleaning equipment; C Industrial sewerage systems; C Operating instructions for the first cleaning stage (mechanical); C Secondary purification stage (biological) operating requirements; C Operating instructions for third stage cleaning (nutrient removal); C Operating instructions for chemical wastewater treatment; B Compaction and dewatering technologies; C Decomposition process; C Composting process; C Biogas utilization process; C Coarse dust separation process, tools; C Fine dust separation process, tools; C Physical gas and steam separation process, its means; C Chemical gas separation process, tools; B Production waste collection rules; B Production waste registration rules; B Waste transfer documentation; B Maintenance; ; Personal competences; ; Responsibility; Ability decisions; organizing Skills; Stamina; Commitment, commitment; Reliability; Sturdiness; Interpersonal skills; Sense of initiative;
Units of Learning Outcome 6 (ULO)	Tasks of an environmental measurement technician Knowledge; ; Checks the delivered sample; Store the sample professionally; Adheres to the relevant occupational safety regulations; Prepare the sample for testing; Prepares the necessary chemicals; Prepares the necessary tools and equipment; Performs the necessary calibrations; Examines a soil sample; Determines the concentration of an air pollutant; Determines the state of air pollution; Performs waste testing; Tests surface water; It examines groundwater; Tests sewage; Checks the quality of drinking water; Performs microbiological tests; Performs on-site soil inspections; Performs on-site waste analysis; Performs on-site water tests; Performs on-site flue gas analysis; Performs the necessary calculations; Performs certification; Document the results; Performs daily maintenance of tools and instruments; Store materials and equipment according to regulations; It collects the generated waste selectively; Document the use of materials and instruments; Provides replenishment of the material; ; Skills; ; 2 ECDL 4. m. Spreadsheets; 4 Understanding a read professional text; 4 Professional language skills, writing in writing; 4 Understanding audible text in professional language; 4 Proficiency in professional language; ; Competences; ; ; C Sample handling rules; B Safety technology for environmental laboratories; B Chemical knowledge; B Laboratory equipment and instrumentation; B Rules for standard soil tests; B Rules for standard water tests; B Rules for standard wastewater tests; B Rules for standard waste tests; B Standard air pollution and air pollution test; B Biological water qualification procedures; B Bacteriological water classification; C Investigation of microorganisms in biotechnological processes; B Rules for on-site soil testing; B Rules for on-site water testing; B Rules for on-site waste analysis; B Rules for on-site flue gas analysis; B Requirements for recording measurement and test data; B Aids to determine results (formulas, relationships, specifications); B Qualification requirements; B Error calculation rules; B Maintenance; B Rules for storage and treatment of laboratory hazardous waste; ; Personal competences; ; Seeing; smelling; precision; Accuracy; Sturdiness; Ability to review; Control (controllability); Organizing ability;

Units of Learning Outcome 7 (ULO)	Nuclear energetic tasks
	Knowledge; ; Involved in the operation of nuclear power plants; Involved in the operation of teaching reactors; Participates in the operation and trial operation of an experimental energy producer; It makes proposals for the modernization of technologies in energy production; more environmentally friendly development; It makes proposals to modernize fuel recycling; Participates in the most important machinery and equipment used in the production of nuclear energy; in the operation of electrical industrial equipment; Participates in the operation of machines for the production and conversion of thermal energy; Participates in the operation of DC and AC motors; It makes suggestions for the possibilities of energy distribution and conversion; Participates in the operation of transformers; It makes proposals for machines and equipment used in the field of nuclear energy; to reduce its harmful effects on the environment; Performs special sampling (lubricants, water samples, air samples); Controls gas emissions, limits for radioactive trace elements; Checks the operation of special water treatment structures in the primary circuit; Checks groundwater quality, maps for leaks; Controls waste management and waste management; Checks secondary circuit water standards; Prepares a summary of the radiation exposure and condition of the environment; Prepares material and energy balance; Performs energy calculations; In the event of an accident, it provides an indication of the expected environmental consequences; ; Skills; ; ; 4 Understanding a read professional text; 4 Professional language skills, writing in writing; 4 Understanding audible text in professional language; 4 Proficiency in professional language; 3 Using sampling tools; 3 Using laboratory equipment; 3 Use of nuclear measuring instruments; 3 Using nuclear equipment; 3 Using thermal energy equipment; 3 Using electrical equipment; ; Competences; ; ; B Auxiliary systems and radiation protection of nuclear power plants; B Classification and disposal of radioactive waste; B Operation of special types of nuclear reactors; B Workplace Radiation Protection Regulations; C Electricity conversion equipment; C Types and division of electrical networks; B Mechanical electrical industrial equipment used in the production of nuclear energy; B Structure and operation of machines and equipment for the production and transformation of thermal energy; B Operation and construction of DC and AC motors; C Possibilities of energy distribution and transformation; B Structure and operation of transformers; C Possibilities and role of rectification in energy supply; C Machinery and equipment used in the field of nuclear energy is harmful to the environment; effects; C Nuclear energy measurements in technology; C Environmental measurements in technology; C Emission limit values; C Impact of product, by-product, waste on the environment; C Air pollutants generated during the production of nuclear energy, their effect a; the environment; C Wastewater generated during the production of nuclear energy and its treatment options; C Possibility of soil pollution, ways to prevent pollution; C

Units of Learning Outcome 8 (ULO)	Water management tasks
	Knowledge; ; Establishment of earthworks; It contributes to the establishment of wired networks; It contributes to the construction of small concrete and reinforced concrete objects; Performs related sub-design (drawing, editing, calculation) tasks; Prepares construction plans; Performs and evaluates soil (mechanical) tests; Performs and evaluates building material tests; It operates a reservoir; It extracts and transfers surface water; He is involved in the operation of inland drainage systems; Participates in flood control work; Participates in local water damage remediation work; Participates in water quality remediation; He is involved in the partial design of irrigation plants; Participates in the operation of irrigation plants and irrigation equipment; He is involved in the partial design of fishponds; He is involved in the operation of fishponds; He participates in the partial design of sewer works; He participates in the operation and maintenance of sewer works; He is involved in the partial design of waterworks; He participates in the operation and maintenance of waterworks; Determines industrial water demand; Participates in the operation of industrial water and wastewater treatment plants; Contributes to the development of water-saving procedures; ; Skills; ; ; 3 ECDL CAD; 4 Understanding a read professional text; 4 Professional language skills, writing in writing; 4 Understanding audible text in professional language; 4 Proficiency in professional language; 4 Using surveying tools; 3 Using electrical and flow measuring instruments; 4 Use of water management facilities and structures; 3 Using hydrometric instruments; 4 Use of flow technology machines (pumps, compressors); 2 Using hand tools (conventional and electric); 3 Laboratory instruments for chemical, biological and material testing; use; 4 Use of pipelines, fittings, fittings; 3 Use of water and wastewater technology equipment; ; Competences; ; ; C Hydrological calculations; C Hydraulic calculations; C Water and wastewater technology calculations; C Drawing, editing; B Building materials; B Earthworks; B Water utilities; B Concrete and reinforced concrete small items; C Schedule structure; C Layout plans; C Costing; C Materials Management; C Payroll management; C Labor management; B Remediation and protection; B Inland drainage and protection; C Water quality remediation; C Mountain and hill water management; C Basics of agricultural water management; C Municipal water management; ; Personal competences; ; Seeing; Reliability; Responsibility; balance Detection; Hearing; Tolerability; Stamina; Accuracy; Spatial orientation; space Vision; precision; Endurance; helpfulness; Management skills; Skills of concise wording; Authority motivated; Conflict resolution skills; Logical thinking; perception; Control (control ability); Practical task interpretation; Caution, caution; Applying knowledge in place; Keeping the environment clean;

Hungary - code:		H05
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*		Mason
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)		carries out preparatory activities; Performs preparatory measurement ; Performs concreting work on site; Waterproofing; Heat and sound insulation; masonry work; Inserts prefabricated parts; produces monolithic concrete and reinforced concrete structures; Makes and dismantles scaffolding; It makes and dismantles traditional formwork; nstalls doors and windows; Makes foundation concrete; bricklaying job, assembling prefabricated elements for instructions; Performs demolition, conversion and restoration work; Handles small machines needed for masonry work; assesses the defects of monumental buildings and structures
TARGET GROUPS ADDRESSED*		
DIDACTIC METHOD (classes, workshops, internships)		Theory: 30%; Internship: 70%
DURATION OF COURSE		1 year
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		-secondary school degree; - medical check; - Professional aptitude requirements
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		none
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		Uniform Classification of Occupations; 7611
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		- LXXIX of 1993 on public education law.; - Act LXXVI of 1993 on Vocational Training.; - Act CXXI of 1999 on Chambers of Commerce; - 31 582 15 1000 00 00 Ministerial Decree on the professional and examination requirements of stove mechanics; ; Decree 1/2006 on modifying the Decree 10/2007. (II. 27.) on the inclusion and deletion procedure National Training Register ; 8/2006 (III. 23.) Decree on the conditions for starting and continuing vocational training and the advisory board of the regional integrated vocational training center. ; OM, Decree 4/2002 (II. 26.) on the benefits of students participating in school-based vocational training. ; OM Decree 20/2007 (V. 21.) on the general rules and procedure of professional examinations
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*		
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Construction "common" tasks
Knowledge & skills	- Knowledge; ; Surveys the work area and conducts site visits; Assess the feasibility of the work task over time, plan the work process; Calculates material requirements; Provides the necessary materials, tools, machines; Checks the materials used; Finds - to the work area - the right tools and manpower; Consult with the designer, representatives of other professions involved in the construction, a customer; Hands over or takes over the work or work area; Performs on-site measurements; Interprets construction and technology plans; Based on the plans, he occasionally makes a sketch; Checks the product of a preventive workflow; Leaving workspace with tools; Ensures that the work area is kept clean at all times; Collects and professionally stores the generated waste; Provides professional storage of materials and tools; Keeps a diary appropriate to your job; Participates in occupational safety, safety, fire and environmental education; Checks occupational safety equipment; Use (provide) the required safety equipment; It ensures the order, accident-free and protection of the work area; Observes special occupational safety regulations; It assesses hazards and health hazards; In the event of an accident or emergency, you will take action in accordance with your job; Complies with monument protection, environmental protection and other legislation, technical the relevant provisions of this Regulation; It takes the necessary action in relation to the pollution that has occurred; Participates in the compilation of invoices; ; C Quantification of material; C Order documents; C Shipping; C Conditions for starting work; B Workspace handover rules; C Document the work performed; B Waste management; B Quantity of material, calculation of material requirements; C Construction schedules (session, headcount schedules); C Construction documentation (construction log, survey log); Occupational safety and accident prevention regulations; B First aid; B Fire protection; Storage, transport and handling of flammable materials; C Regulatory information; Use Protective Clothing; B Environmental protection; ; Skills; ; 1 Basic computer use; 3 Basic numeracy; 3 Understanding a common language text you read; 3 Common language skills; 4 Reading and interpreting construction schedules; 4 Interpretation of architectural symbols; 4 Reading and interpreting the construction plan; 5 Use of individual and group work safety tools and equipment; ; Competences; ; Accuracy; precision; organizing Skills; Interpersonal flexibility; helpfulness; Ability to review; Organizing ability; Numerical thinking, math skills

Units of Learning Outcome 2 (ULO)	Making traditional formwork
Knowledge & skills	Knowledge;; Creates a customized formwork board; Assembles the formwork boards; Fixes the assembled formwork boards; Supports and stiffens the formwork structure; Checks horizontal and height dimensions, and corrects them if necessary; Disassembles structures if necessary; Nails and cleans the formwork material; Sorts and stores shuttered material according to size; ; Properties, defects and diseases of wood; Wood species for industrial use, wood materials, industrial assortments; Measurement methods; Material requirements; Standards; Drawing standards and standard markings; Basics of descriptive geometry; Types of plan and documentation; Saw and sawing machines; Wood surface treatment and lifting machines; Screwdrawing machines; Splitting and cutting hand tools; Assembly and disassembly hand tools; Special tools; Measuring instruments; Marking devices; Conventional formwork, formwork techniques; ; Skills in;; Reading and interpreting architectural technical drawings; Sketching an architectural technical drawing; Interpretation of the technical drawing notation system; Interpretation of the marking system on machines, tools and devices; Interpreting design documentation; Using measuring instruments; Using woodworking hand tools; Using woodworking machines; Using assembly and disassembly tools; Use of machines and devices necessary for moving materials and elements; ; Competences; ; self-sufficiency; Precision; Physical strength; review;

Units of Learning Outcome 3 (ULO)	Making traditional scaffolding
Knowledge & skills	- Knowledge: Allocation of brackets; Locates the load distributors; Adjusts and secures the scaffolding supports; It prepares the working levels and walkways; Prepares the guardrail; Prepares and places any protective structures that may be required; Disassembles protective equipment; It breaks down the plank; Disassembles the brackets and mounting; Cleans brackets and accessories; Deposit the scaffolding material by type; ; ; ; properties, defects, diseases of wood; Wood species for industrial use, wood materials, industrial assortments; timber drying methods; Use and types of binders; Standard; Sizing methods; Representation modes; Understands drawing and marking standards; Basics of descriptive geometry; Types of plans and documentation; Saws, sawing machines; Wood surface treatment and lifting machines; use of drill; Splitting and cutting hand tools; Assemble and disassemble hand tools; use of specialized tools; Measuring instruments; Marking device; Milling machines; Joints, connections, brackets; Tensioners and suspensions; Scaffolding types, scaffolding structures, walkways; Making scaffolding elements; Demolition and conversion; Fire protection regulations; Flammable materials; Skills: Proficiency in professional language; Reading and interpreting an architectural technical drawing; Sketching an architectural technical drawing; Interpretation of the technical drawing notation system; Interpretation of the marking system on machines, tools and devices; Interpreting design documentation; Using measuring instruments; Using woodworking hand tools; Using woodworking machines; Using assembly and disassembly tools; Use of machines and devices necessary for moving materials and elements; Competences: Stamina; Balance Sense; Reliability; self-sufficiency; Accuracy; Movement coordination (physical dexterity); Physical strength; space Perception

Units of Learning Outcome 4 (ULO)	Preparation of water, heat and sound insulation;
Knowledge & skills	- Knowledge: Prepares and cleans the surface; Strengthens and makes the insulation socket suitable; Forms bends, carry out bend reinforcements; uses insulating material according to the technology; insulation techniques; Laying insulating sheets; strengthens and creates connection between the and the available technology; Examine the surface that will be insulated; strengthens and evens out the surface before applying the adhesive; Apply adhesive; places the thermal insulation material, boards; places a separating layer, a dehumidifying layer; protection for heat and sound insulation material; assessment of conditions before insulation work; ; insulation methods, procedures; Insulation standards; Structures; Plan reading; Insulation material production process; Placement requirements; Methods of fixing insulation materials; Types of waterproofing materials, their use; Types of heat and sound insulation materials, their use; Types of adhesives required for insulation, their use; Types of fasteners, use of fasteners; Types of drainage materials, their use; Interaction of substances; Properties of materials; Materials testing methods; Handling of material; Adverse effects of adhesives; hand tools; Cutting and preparation tools; Small machinery; adhesive preparation; Regulatory requirements; Material marking; Sizing methods; Protective measures; Utility connections; Skills: Proficiency in professional language; Interpretation and understanding of machine user manuals in foreign languages; Reading and interpreting an architectural drawing; Reading and interpreting a building engineering drawing; Interpretation of insulation symbols; Interpretation of architect structural symbol; Interpreting level marks; Understanding the operation of machines and equipment; Using waterproofing tools; Using heat and sound insulation tools; Use of machines and equipment before applying adhesives; Using gluing and assembly tools; ; Competences: able to make compromises; Sturdiness; Conflict resolution skills

Units of Learning Outcome 5 (ULO)	Production of monolithic concrete
	Knowledge: ; foundational work; producing slabs; make a bridge and a wreath; develop a wall, a pillar, a column; carry out concreting in accordance with the load-bearing capacity of the formwork; compaction of concrete; check the dimensional and shape accuracy; Provides winterization and after-treatment of concrete; Repairs surface damage; ; ; Use of Construction machinery (hoist, material handling, concrete mixer); knows the types, size and incorporation of reinforcing steels; Concrete composition; Classification of concretes (strength, consistency); Concrete processing; After-treatment of concrete; Concrete surfaces, quality requirements; Quality control of concrete structure; Formwork for under-ribbed, over-ribbed or flat slabs; Formwork for ramps, stairs, coffin slabs; Formation of wall and slab concreting rates, working joints; Concreting application methods; Materials and methods for repairing concrete surfaces; ; Skills: ; use of concrete processing machines and equipment (container, concrete pump, etc.); Reading and interpreting an architect-static technical drawing; Reading and interpretation of formwork drawing; ; Competences: Stamina; Tolerability; Strong physique; Team spirit;

Units of Learning Outcome 6 (ULO)	Masonry, plastering Knowledge: ; set the foundations; Specifies the location of the walling; Spreads mortar; Check the walling horizontally line by line; Inserts bridging elements; Place wreath elements; Places floor slabs; Builds masonry and plaster scaffolding; make traditional plaster on interior wall and ceiling surfaces; produce machine plaster on internal wall and ceiling surfaces; Prepares a surface; Make a basic plaster; Make smoothing plaster; exterior plaster; Produces machine plaster for external facade surfaces; Make decorative plaster; Make rubbed plaster; Make scratched plaster; make stone and brick facade cladding; ; Preparation for construction; Prepare conditions for working; Basics of Structural Engineering; Statics; Sketching; Lifting Instructions; Placing pieces; Machines for Material preparation; Interaction of Substances; Properties of materials; Mixing materials; Standards; Lifting machines; Hand Tools; Energy insurance; Official regulation; Survey; Building a construction and survey log; Architect Design Signs; Understand engineer design marks; Size and structure specification; Utility connections; types of building materials and their use; Scaffolding; Manual plastering; Machine plastering technology; Mixing plaster types; Mortar preparation; technologies used for the decorative plastering of facades; Types of facade coverings; Types of brick joints, their field of application; Types of masonry blocks; ; Skills: ; Architect software management; Using CDs issued by manufacturers; 4 Comprehension of texts; 3 Writing text ; 3 Handwriting; 4 Understanding text; 3 good language skills; 5 Understanding a read professional text; 3 Professional language skills, writing ; 4 Understanding audible text in professional language; 3 Proficiency in professional language; 5 Reading and interpreting an architectural drawing; 3 Creating a sketch; 2 Reading and interpreting a mechanical drawing; 5 Interpretation of architectural symbols; 3 Interpretation of mechanical symbols; 5 Interpreting level marks; 4 Reading and interpreting design documentation; 5 Basic numeracy; 5 Quantity sense; 3 Understanding mechanical laws; 3 Understanding the operation of machines and equipment; 5 Using Masonry Hand Tools; 5 Using badge tools; 5 Use of construction machinery and equipment; 4 Using measuring instruments; ; Competences: ; Responsibility; Movement coordination (physical dexterity); precision; Strong physique; Sense of balance; Accuracy; organizing Skills; rule of thumb; self-sufficiency; chic; space Perception;
Units of Learning Outcome 7 (ULO)	Concreting tasks Knowledge: ; keeps a material register; Designates and secures shipping routes; maintains machines and tools; checks work area, work performance and safety; organizes the delivery of the material; Provides ground support ; Performs concrete mixing on site; Add the necessary materials; Mix the concrete; make stairs; produces prefabricated concrete, foundation concrete, sidewalks; Sets the level, checks slope conditions; Spread the subgrade concrete; makes dilatations and machines surfaces in accordance with the regulations; Protects and cares for the substrate; Replaces floor if necessary (observes demolition regulations); Performs chimney lining; chimney masonry; builds a chimney from prefabricated elements; Prepares and places the chimney cover; Performs subsequent repairs; ; Prefabrication process; B Material handling machines; B Compaction machines; C Location and installation of machines; D Accessibility of machines, organization; C Machine maintenance; Occupational safety regulations; E Manual; C Occupational safety inspections; C Record keeping; C Material order; D Freight organization; C Material storage and storage; E Organization; B Touch protection; B Material Inventory; B Material schedule; B Concreting technology; C Chimney masonry technology; C Chimney lining materials, technology; B Leveling, slope control method; B After-treatment of concrete; C Types, size, incorporation of reinforcing steels; B assembly of iron; ; Skills: ; ECDL 4. m. Spreadsheets; 4 Quantity calculation skills; 3 Using office equipment; 3 Using information tools; 5 Using Masonry Hand Tools; 5 Use of construction machinery and equipment; ; Competences: ; Responsibility; Movement coordination (physical dexterity); precision; Strong physique; Sense of balance; Accuracy; organizing Skills; rule of thumb; self-sufficiency; space Perception;
Units of Learning Outcome 8 (ULO)	Special masonry tasks - Knowledge: ; Sets the location of the door and window; Prepares the space for the installation of doors and windows; fix windows, doors in their final place; Checks the anchor points; Assembles the parts; carry out demolition work; Coordinates the demolition and conversion tasks; Determines the required support, support, safety; tasks; Defines the technology of demolition, transformation work, performs demolition; Removes excess material from the demolition area; repair; ; Placing/fixing parts; Safety regulations for demolition work; B Demolition technology; B Adjusting and installing doors and windows; ; Skills: ; using badge tools; Using Masonry Hand Tools; Using construction machinery and equipment; ; Competences: ; Responsibility; Movement coordination (physical dexterity); precision; Strong physique; Sense of balance; Accuracy; organizing Skills; rule of thumb; self-sufficiency; space Perception

Hungary - code:		H06
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Stove mechanic	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Prepares construction materials; Prepares the construction processes and works; Participates in the preparations for the construction work; Participates in the execution of construction work processes; Builds tile stove; Rebuilds, cleans and repairs combustion equipment; Builds the fireplace; He builds the furnace; Builds and installs accessories for combustion devices; Performs finishing operations;	
TARGET GROUPS ADDRESSED*		
DIDACTIC METHOD (classes, workshops, internships)	Theory: 60%; Internship: 40%	
DURATION OF COURSE	1 year	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	-secondary school degree; - medical check	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	none	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Uniform Classification of Occupations; 7637	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	- LXXIX of 1993 on public education law.; - Act LXXVI of 1993 on Vocational Training.; - Act CXXI of 1999 on Chambers of Commerce; - 31 582 13 0000 00 00 Ministerial Decree on the professional and examination requirements of stove mechanics; ; Decree 1/2006 on modifying the Decree 10/2007. (II. 27.) on the inclusion and deletion procedure National Training Register ; 8/2006 (III. 23.) Decree on the conditions for starting and continuing vocational training and the advisory board of the regional integrated vocational training center. ; OM, Decree 4/2002 (II. 26.) on the benefits of students participating in school-based vocational training. ; OM Decree 20/2007 (V. 21.) on the general rules and procedure of professional examinations	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*		
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Construction "common" tasks
Knowledge & skills	Knowledge; ; Surveys the work area and conducts site visits; Assess the feasibility of the work task over time, plan the work process; Calculates material requirements; Provides the necessary materials, tools, machines; Checks the materials used; Finds - to the work area - the right tools and manpower; Consult with the designer, representatives of other professions involved in the construction, a customer; Hands over or takes over the work or work area; Performs on-site measurements; Interprets construction and technology plans; Based on the plans, he occasionally makes a sketch; Checks the product of a preventive workflow; Leaving workspace with tools; Ensures that the work area is kept clean at all times; Collects and professionally stores the generated waste; Provides professional storage of materials and tools; Keeps a diary appropriate to your job; Participates in occupational safety, safety, fire and environmental education; Checks occupational safety equipment; Use (provide) the required safety equipment; It ensures the order, accident-free and protection of the work area; Observes special occupational safety regulations; It assesses hazards and health hazards; In the event of an accident or emergency, you will take action in accordance with your job; Complies with monument protection, environmental protection and other legislation, technical the relevant provisions of this Regulation; It takes the necessary action in relation to the pollution that has occurred; Participates in the compilation of invoices; ; C Quantification of material; C Order documents; C Shipping; C Conditions for starting work; B Workspace handover rules; C Document the work performed; B Waste management; B Quantity of material, calculation of material requirements; C Construction schedules (session, headcount schedules); C Construction documentation (construction log, survey log); Occupational safety and accident prevention regulations; B First aid; B Fire protection; Storage, transport and handling of flammable materials; C Regulatory information; Use Protective Clothing; B Environmental protection; ; Skills; ; 1 Basic computer use; 3 Basic numeracy; 3 Understanding a common language text you read; 3 Common language skills; 4 Reading and interpreting construction schedules; 4 Interpretation of architectural symbols; 4 Reading and interpreting the construction plan; 5 Use of individual and group work safety tools and equipment; ; ; Competences; ; Accuracy; precision; organizing Skills; Interpersonal flexibility; helpfulness; Ability to review; Organizing ability; Numerical thinking, math skills

Units of Learning Outcome 2 (ULO)	Installation of a combustion device
Knowledge & skills	Knowledge: ; Sizes the covering material to size; Cut out the openings; Makes siffers and liners; Cut the wire to size; Stir in the clay; Sizes the pedestal; Insulates the pedestal; pours, wedges, lines the stove body; Connect the tile stove flue to the chimney; Cover the stove at the last row; It cleans the stove; He fires the stove; Wash off excess grout; Evaluates and eliminates errors that occur; Demolishes the old stove; Indicates a tile; Cleans, washes the tiles; Restores broken tiles; Replace missing tiles; Places the fire pit; Connects the fireplace and the chimney; Builds the decorative elements; Performs insulation; Builds a smoke trap; It provides ventilation by installing a combustion air supply system; Perform the necessary plastering; Cleans the fireplace; Installs and adjusts the fireplace; Prepares the bottom of the combustion chamber with special materials; Prepares the fireplace; Places the iron structures; Prepares the finishing masonry; Plaster the necessary parts; Paint the necessary parts; Cleans facilities; ; Grouping of tiled stoves (by weight, location, fuel used); Wood-burning tiled stoves; Mixed-fired tiled stoves; Gas - fired tiled stoves; Tiled stoves with filling system; Portable tiled stoves; Tile stove material, fittings; Types and uses of stove tiles; Interior masonry and lining materials; Chamotte shapes; Binders; Adhesives; Grouting materials; Bricks, tiles, chamotte materials; Glazes; Metal qualities (iron, steel, non- ferrous metals); Iron fittings; Tile Furnace Construction Technology; The Chimneys; Steps for installing the Ash Door, fuel door; Requirements for the construction of a fire cabinet and smoke passage; Types of ovens; Furnace construction technology; Construction of energy saving stoves; Installation of cast iron stoves; Installation of climbing chimney stoves; Hand tools; Base angle, measuring instruments, spirit level; Small industrial machines; New energy-saving materials and devices; Technical Drawing; Standards; Most efficient design of the combustor; Ceramics basics; Air flow requirements for combustion plants; Design and insulation of bench, wood storage; Electric tiled stoves; ; Skills in:; Basic numeracy; Use of hand tools; Use of right angle, measuring instruments, spirit level; Use of small industrial machines; Reading and interpreting sections and structural drawings; ; ; Competences in:; ; Sense of Responsibility; self-sufficiency; Aesthetic skills; Precision; Physical strength; Organizing Skills; Ability to review; Creativity, richness of ideas; Trying out new ideas and solutions;
Units of Learning Outcome 3 (ULO)	General business/ entrepreneurial skills
Knowledge & skills	- Make a quote (pricing); advertises, recommends its activities and provides information; available for customers; deals with complaints; issues an invoice for the work done; Performs business and operational tasks; involved in running of a small business; research market needs; flexible in adapting to technological change

Hungary - code:		H07
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Gas and heat generation equipment installer	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)		
TARGET GROUPS ADDRESSED*	mechanics; gas network installers; heating systems experts	
DIDACTIC METHOD (classes, workshops, internships)	30% theory;70% practical	
DURATION OF COURSE	1 year	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	- possessing Professional qualifications in: Central heating and gas network system installer,;- medical certificate	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	- Act CXC of 2011 on National Public Education,;- Act CLXXXVII of 2011 on vocational training;- 150/2012 on the National Training Register and the procedure for amending the National Training List. (VII. 6.) Government Decree,;- 217/2012 on the professional requirements modules of state-recognized vocational qualifications. (VIII. 9.) Government Decree,;- Decree 35 582 01 on professional and examination requirements for the qualification and installation of gas and heat generators	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*		
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Electrical installations for building services
Knowledge & skills	Study and interpret documentation of work processes, tools, technology;Makes an assembly sketch;Performs connections and wiring;Detects and corrects electrical faults;Checks the cable continuity with a measuring instrument, replace the cable if necessary;Checks to replace defective electrical component as needed;Checks the existing network;Performs measurement tasks;Prepares wiring, assembly, wiring drawings;It installs the devices of the measuring circuits, the control circuits and the control circuits;Adjust the devices in the control circuits;Coordinates the devices in the control circuits;Performs electrical safety measurements;It puts the device under voltage / pressure;Download software, manage computer;The settings are made according to the documentation;Performs a function test on the device;Performs device conversion work;Selects a new item, part, or device;Install the new battery, part, or appliance;Installs the new part, device;Document the commissioning and conversion;Performs fine tuning of controls;Makes operating settings on programmable logic controllers;Updates software on programmable devices;;Knowledge;;Electrical engineering basics;DC and AC networks;Electronic circuits;Safety technology for electrical machines;Power electronic circuits;Electrical measuring instruments;Mechanical measuring instruments;Electrical measurements;Mechanical measurements;Wiring and wiring drawings;Electromagnetic interference (EMC);Computer aided technologies;Basic concepts of control technology;Control bodies, members, equipment;Basic concepts of control and regulation technology;Characteristics of electrical machines;Operation of electrical machinery;Technical representation;;Skills;;Reading and interpreting technical drawings;Reading and interpreting a diagram, nomogram;Freehand drawing;Use of small machines, hand tools;Use of laboratory equipment;;Competences;;Accuracy;Dexterity;Sturdiness;Interpersonal skills;Organizing ability;Practical task interpretation;Problem solving, troubleshooting;

Units of Learning Outcome 2 (ULO)	Tasks of gas and heat equipment technician
Knowledge & skills	Connects electrical equipment; switch cabinet, control and regulation units;Checks system belonging to all;electrical, safety equipment connection, contact protection, and correct operation;Checks the secure fastening and strength of the mechanical connections.;Performs gas and heat generation equipment as well as other equipment, regulators and controllers associated with the system;installation of instruments;Performs an external internal leak check;Performs handover procedure;Controls the fuel and heat generator;technical condition of the equipment, perform all repair and maintenance activities for the safe and energy-saving operation of the equipment.;Performs the cold test, technological interlock test;Checks for heat generating equipment for burners, other, related to the technology equipment, the internal control and running control programs;Performs a hot run test of the device;Test the latches during operation at the limit;Checks the device by simulating error symptoms;Puts the system into operation and puts it under fuel supply;Provides technical advice to consumers on appliances and their operation.;Describes handling and operating information;Identifies the fault and makes a cost-effective repair of the faulty equipment;Explores factors that prevent or exclude repair, with a view to further economical and energy-saving operation, and, if appropriate, make a proposal to replace the equipment;Repairs heat generating equipment, replaces parts;Assesses the condition of the heat generating equipment and initiates regular maintenance of the device;Checks the conformity of the combustion chamber, firebox, heat exchanger, boiler body, fuel dispenser in the heat generating equipment, cleans the contaminated parts;Cleans burners and heat exchangers mechanically and chemically;Instrumentally checks the correct oil and gas burner pressures and operation;Instrumentally checks the combustion product;Adjusts gas to air, oil to air ratio;Maintains and repairs oil combustion equipment;Checks the fuel supply and then puts it into operation;Checks the operation of the oil pump and bleed if necessary;Checks and, if necessary, replace the thermal safety valve;Performs flue gas analysis;Complex heat generation systems;Adjusts, sets the required priority connections;Prepares the materials, tools and instruments necessary for maintenance;Performs other maintenance specified by the manufacturer in the manual;Document the technical review, give a standard contractor installation declaration;Keeps a maintenance log, records deficiencies, maintains customer, repair, computer records;Fills in warranty, guarantee tickets and service books;Provides documented training for operators,;for users, owners;;Knowledge;;Gas and heat engineering equipment;electrical connection rules;Gas and heat appliances;operating rules for its adjustment;Combustion equipment electromechanical;;rules and operating principles of electronic firing control;Official procedures;Rules for measuring contact protection parameters;Operating rules for flue gas analysis;Environmental impact of heating plant operation;Building engineering systems knowledge;Flue gas

Units of Learning Outcome 3 (ULO)	General mechanics tasks
Knowledge & skills	;Compares the construction plans with the installed equipment and the realized condition;In case of discrepancy, decide on the continuation of work;Review and control the natural and artificial combustion air supply associated with the equipment in accordance with the provisions in force;Performs calibration and comparison with a usage standard on the measuring instruments used;Reviews and gets to know the flue gas drainage systems, their elements, their operation, and the adequacy of their design.;Inspects and learns about gas / air mixing units in gas appliances;Identifies the building services device based on documentation;It assesses the technical condition of the gas and heat production equipment;Disconnect the appliance from the water, gas, electricity and heating networks;Locates and secures support structure;Installs and connects the device to the network.;Checks the tightness of the connections;Inspects combustion and heat generation equipment, combustion chamber, firebox, heat exchanger, boiler body, indirect storage, tank, mixer and diverter valves, primary and secondary circuit pumps, etc. condition, ;Cleans the combustion chamber,burners, nozzles, gas and water side filters, air separators;Electrically connects the heat generator and other equipment related to the technology;Performs the cold-running test, technological locking test;Checks the program run of the heat generator control;Supplies fuel and puts the appliances into operation;Performs a hot run test of the device;Checks installed devices by simulating faults;Installs, maintains, repairs and replaces the devices in accordance with the applicable regulations;Installs, maintains and repairs gas network units;Connects the combustion air and flue gas outlets of the appliances;Perform the flue gas analysis with a flue gas analyzer, a;evidence of measurement;Compares the measured data with the manufacturer's specifications and, if necessary, re-regulates the heat generating equipment;Reviews the construction of solar collectors, heat pumps, biomass combustion and solar cell applications in complex heat generation systems;Documents the installation, repair, maintenance of the equipment, technical inspection gives a standard contractor-installation declaration;Asks the consumer for operating information and informs about the professional and energy-saving operation of the devices;Sets a service fee and issues an invoice;Prepares the conclusion of the consumer maintenance contract, proposes energy savings;;Knowledge;;Relevant official regulations in force;Application of consumer protection regulations;Gas and oil consuming equipment;electrical connection operations, rules;Operating rules for adjusting gas and oil consuming appliances;Contact protection parameters, operating rules of measurements;Operating rules for environmental measurements;Regulation and control technology;Building services system;Chimney and air supply heat and flow technology;Types of thermal measuring instruments and measurements;Use of renewable energy systems;Fault detection, search and troubleshooting on gas, oil and heat production

Hungary - code:		H08
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Plumbing and plumbing equipment installation expert	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Provides the conditions for continuous and safe work; builds the pipeline network and ensures the conditions for their commissioning; Performs renovation, repair, maintenance, periodic inspection work; Performs administrative activities related to his work; Assesses the energy status of buildings; Optimizes the total energy needs of the building with a computer program; Prepares a cost estimate; Provides suggestions on all issues related to modern energy use; Keeps in touch with customers; Documents your proposal for the use of energy saving technologies; Performs technical-safety review of gas supply systems; Reviews and certifies gas consumption systems; Prepares review report	
TARGET GROUPS ADDRESSED*	Energy recovery equipment installer; Gas appliance and pipe fitter; Central heating and plumbing fitter; Plumber;	
DIDACTIC METHOD (classes, workshops, internships)	30% theory; 70% practical	
DURATION OF COURSE	1 year	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	- possessing previous possessing mechanical professional competencies. OR 8-grade primary school certificate;- medical certificate	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	Act LXXIX of 1993 on Public Education, as amended several times;- Act LXXVI of 1993 on Vocational Training, as amended several times;- Act CXXI of 1999 on Chambers of Commerce, as amended several times;; Government Decree of 133/2010. (IV. 22.) on the National Training Register and the procedure for amending the National Training Register, Decree of the Ministry of Education 8/2006 on the conditions for starting and continuing vocational training and the advisory board of the regional integrated vocational training center. (III. 23.), Decree of the Ministry of Education 4/2002 on benefits for students in vocational training in the school system. (II. 26.); Decree 20/2007 by the Ministry of Social Affairs and Labor on the general rules and procedures of professional examinations. (V. 21.); Ministerial Decree responsible for the vocational qualification containing the professional and examination requirements for plumbing and equipment installation expert qualification (31 582 09)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*		
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	General mechanics tasks
Knowledge & skills	Studies and interprets documents related to the subject and purpose of the work; Selects, inspects and maintains general manual and small metal forming machine; machines, tools, measuring instruments used for operations; protective equipment; Creates simple mechanical engineering drawings; Simple parts, structural units for the preparation of operation or assembly; making a plan; Prepares the execution of the work task, the materials needed for it; consumables, prefabricated elements, machines, tools, measuring instruments; gripping and clamping devices, conveying and lifting equipment, protective equipment; personal protective equipment; Prepares sketches as needed based on documentation; Studies and interprets work processes, tools, technologies; relevant documentation; Studies and interprets general mechanical materials and components; relevant information (standards, technical tables, product catalogs); Selects general mechanical materials and parts; Determines the amount of material required; Performs basic measurements in mechanical engineering (length, angle, perpendicularity, etc.); Performs shape and position accuracy measurements with general tools; Forms the workpiece with basic manual cutting procedures (sawing, filing; threading, countersinking, reaming, hand tool sharpening); Performs plastic forming with basic manual operations (stretching, straightening, bending, etc.); Forms the workpiece using manual small machine procedures (cutting, drilling, surface cleaning; hand tool sharpening, etc.); Contributes to the implementation of quality assurance tasks; Knowledge; Basic typographical concepts; Plane geometric edits; Representation modes; Reading, interpreting and making technical drawings; Reading, interpreting and making diagrams; Use of standards; Interpretation of manufacturing instructions; Use of manual, operating, installation, maintenance instructions; Measurement instructions; Units of measurement; Mechanical properties of industrial materials; Thermotechnical properties of industrial materials; Electrical properties of industrial materials; Corrosion properties of industrial materials; Technological properties of industrial materials; Other characteristics of industrial materials; Relationship between microstructure and properties; Industrial ferroalloys and their properties; Light metal alloys and their properties; Non-ferrous metal alloys and their properties; Effect of alloys on material properties; Standard industrial ferro - alloys; Standard light metal alloys; Standard non-ferrous alloys; Knowledge of technical measurement tools; Measuring and checking length dimensions; Measuring and checking angles; Measurement and control of shape and position accuracy; Sketching; Filing, sawing, grinding; Edge training; Plastic forming; Bending; Stretching; Straightening; Manual and small machine cutting; Basics of quality assurance; Touch protection basics; Safety knowledge of tools and hand tools; Occupational safety rules for machine operation; Occupational safety rules for material handling; Operational safety rules for lifting and

Units of Learning Outcome 2 (ULO)	General mechanical work, accident, fire and environmental protection tasks
Knowledge & skills	Adheres to to work, accident, fire and environmental protection and a; other requirements for the profession, installation and repair technology; Participates in the investigation and documentation of incidents related to work, fire and environmental protection Provides first aid and firefighting equipment; Indicates fire; Design the workspace according to the rules; adheres to the rules of selective and hazardous waste collection; Adheres to and adheres to regulations for the handling of hazardous materials; Participates in the rescue, provides first aid;; Knowledge;; Environmental knowledge; Fire protection knowledge; Occupational safety knowledge; Firefighting equipment; Fire damage notification; First aid knowledge; Rules of work;; Skills;; Use of work safety tools and equipment; Management of information sources; Wording of common language text in writing; Interpretation of symbols related to occupational safety; Interpretation of color markings related to occupational safety; First aid;; Competences;; Accuracy; Independence; Quorum; Responsibility; Compliance; Controllability; Sturdiness; Management skills

Units of Learning Outcome 3 (ULO)	Basic tasks of building engineering
Knowledge & skills	Studies and interprets the subject, purpose, materials of building engineering work; technology documents (design documentation, manuals, standards, technical tables, product catalogs); Performs basic electrical measurements (voltage, current, resistance, frequency, phase in DC and AC circuits); Checks the contact protection of the electrical network supplying the equipment energizes the equipment necessary for
Units of Learning Outcome 4 (ULO)	General piping tasks
Knowledge & skills	Makes scaffolding, checks the condition of ladders, scaffolding, walkways, required; Initiates replacement and repair; Sketches as needed for mounting devices and wall breakthroughs based on the documentation; Selects trails; Performs or initiates masonry, wall engraving, and repair masonry work; Performs plastic forming with basic manual operations (stretching, straightening, bending, etc.); Based on plans, he / she prepares / prepares the supports, fasteners, scaffolds, machine bases on site or in the workshop; Installs the support structure of building services equipment; Makes a sealing ring and a shaped seal from a sealing plate; Makes sealed pipe joints and assembles from various pipe materials; Checks the tightness of pipe connections; After repair, he performs the necessary measurements and inspections; Installs heavy-duty units; Participates in the on-site transportation and lifting of large-scale machine units and equipment; Knowledge; Safety technology for assembly scaffolding, treatment walkways, ladders; Types of piping installation; Characteristics of use of sealants, rules of application; General construction knowledge; Types of structural units of buildings, static evaluation methods; Thermal properties of building structures; Application characteristics of support structures, frame structures; Plate forming technology; Pipe materials, pipe structures, fittings, profiles; Mechanic knowledge of masonry; Safety technology for moving large objects; Skills; Technical drawing skills; Pipeline drawing skill; Basic numeracy; Competences; Tolerance; Accuracy; Precision; Patience; Willingness to cooperate in the work; Logical thinking; Caution, caution; Design ability; Practical task interpretation
Units of Learning Outcome 5 (ULO)	Piping, equipment, chemical and calorie machine installation tasks
Knowledge & skills	Installs appliances, equipment, makes connections, connects to water, sewerage and other networks; Cuts and processes steel pipe to build a pipeline; Makes pipe threads manually and mechanically; Builds a piping system from threaded steel pipes and fittings and makes a threaded pipe connection; Assembles a pipe system assembled from prefabricated elements; Makes pipe connections to hoses, connects hoses to pipe systems; Makes welded pipe joints on steel pipes; Installs a hard copper wire; Installs a soft copper wire; Makes a press joint; Welds plastic pipe by various methods; Installs plastic heating and cold-water pipes with various connection methods; Performs a pressure test of a completed pipe network and checks its tightness; Performs basic installation of ventilation and exhaust ducts; Builds drainage and sewage pipes inside the building; Lays external ground wires using a variety of methods and materials; Maintains and cleans sewage structures; Cleans drain fittings; Hand over the installed equipment; Document the data measured during the test run; Knowledge; Properties and installation technology of steel pipes; Operation and maintenance characteristics of pipe cutting machines; Properties and installation techniques of copper pipes; Properties and installation techniques of plastic pipes; Properties and assembly techniques of other pipe materials; Properties and installation technology of ventilation ducts; type of professional knowledge; Materials and installation techniques for drainage and sewerage; Installation services of sewage systems and structures; Drain system cleaning technique; Cleaning products; Test run characteristics; Skills; Dexterity; Technical drawing skills; Basic numeracy; Competences; Balance perception; Movement coordination; Dexterity; Willingness to cooperate in the work; Consensus skills; Willingness to compromise

Units of Learning Outcome 6 (ULO)	Energy recovery equipment installation task
Knowledge & skills	Locates, connects the storage tank;Connects the heating circuit, heat exchangers, pump;Makes electrical and control connections;It places and connects the flat plate collector, vacuum tube;Fixes and connects the solar collector;Fits the solar collector to an existing or new heating system;Fills the solar system with liquid;It installs the solar system;It makes a solar collector from plastic parts and pipes;It makes and installs heat exchangers from plastic parts and pipes;Performs the installation of heat pump system units;Connects the heat pump system units;Performs electrical connections to the heat pump system;Locates and connects the automation components of the heat pump system;It installs, inspects and maintains the heat pump system;Fits the heat pump system to an existing or new heating, DHW system;Determines the location of the installation based on wind conditions;Checks the support structure;Assembles the machine units;Adjust the wind motor;Makes electrical connections;It assembles and puts into operation a bioenergy utilizer;;Knowledge;;Renewable energies;Solar installation knowledge;Building engineering systems knowledge;Heat pump knowledge;Knowledge of refrigeration technology;Basic knowledge of building electrical network installation;Basic knowledge of heating technology;Basic knowledge of boiler fitters;;Skills;;Reading and interpreting a mechanical drawing;Making a mechanical drawing;Reading and interpreting a construction drawing;Making a construction drawing;Reading and interpreting electrical and control network drawings;Preparation of electrical and control network drawings;Reading and interpretation of building engineering piping drawings;Preparation of building engineering piping drawings;Reading and interpreting flowcharts;Reading and interpreting a diagram, nomogram;Filling and making a diagram, nomogram;Basic numeracy;Sense of quantity;;Competences;;Good Balance Sense;Movement coordination;Dexterity;Willingness to cooperate in the work;Consensus skills;Willingness to compromise;Diligent work;Systematic work;;

Units of Learning Outcome 7 (ULO)	Gas appliance installation tasks
Knowledge & skills	Examine the operating conditions, check the existence of official and manufacturer's licenses and warranty conditions;Inspects natural and artificial ventilation systems, controls air supply;inspects, gets to know the flue gas drainage systems, their elements, their operation, the adequacy of their design;Identifies the building services device based on documentation;It assesses the technical condition of the gas and combustion equipment;Disconnect the appliance from the water, gas, electricity and heating networks;The support structure locates and secures the device;Install and connect the appliance to the mains (water, gas, heating, electric);Checks the tightness of connections (water, gas);Checks the condition of combustion and auxiliary equipment, combustion chamber, firebox, heat exchanger, boiler body, cleans burners and nozzles;Checks the operation and presence of the latches, performs the cold operation test, technological latch test;Checks the program run, ventilation (ventilation time) for burners;Performs a hot run test of the device;Test the latches during operation at the limit;Checks the device by simulating error symptoms;It installs and puts the system under gas;It installs, maintains and repairs household gas appliances;It installs, repairs and maintains industrial gas burners;It installs, maintains and repairs gas network units;Connects the flue of the appliances;Checks the tightness of connections (water, gas, heating);Performs a pressure test in the presence of the receiver (strength, tightness);It documents the technical inspection and gives an official standard contractor-installation declaration;In special circumstances, it draws attention to obtaining the necessary official or specialist permits (listed building, protected façade, noise, ambient air condition, etc.);If necessary, he performs a preliminary consultation, helps with the selection of the appropriate device with an on-site inspection and a drawing;It asks for information from the consumer, informs and instructs on the use of the devices;It sets a service fee and issues an invoice;Prepares for concluding a consumer contract;;Knowledge;;Application of regulations;Operations and rules of electrical connection of gas equipment;Operating rules for gas appliance adjustment;Contact protection parameters, operating rules of measurements;Operating rules for environmental measurements;Building services system;Chimney and air supply heat and flow technology;Types of gas instruments and measurements;Troubleshooting and recognition;Official procedures;Commissioning and service system;Ways of handing over equipment;Warranty and warranty conditions;;Skills;;Preparation of building engineering piping drawings;Reading building engineering piping drawings;Basic numeracy;Competences;;Sense of Responsibility;Sense of Reliability;Precision;Dexterity;Skills to cooperate;Sturdiness;Communication skills;Troubleshooting (diagnosis);Exploring the causes;Ability to review;Organizing ability;Diligent work;Compliance behaviour

Units of Learning Outcome 8 (ULO)	Gas consumption and pipeline installation tasks
Knowledge & skills	Lays a gas pipeline in the ground, performs insulation and corrosion protection;Steel pipe welding is performed by flame welding;Steel pipe welding is performed by arc welding;It installs special fittings in the gas pipeline network at pipe material change points;Performs gas pipe welding with special techniques;Maintains special gas pipe welding devices and machines;Designs the location of the gauge and pressure regulators;It places and fixes the gas consuming equipment according to the plan;Creates a flue for the appliance;Installs the fans;Installs and fixes the gas fittings;;Knowledge;;Knowledge of air supply and gas load calculation;Gauge and pressure regulator installation knowledge;Steel pipe welding skills;Plastic pipe welding technology and operating rules;Operation and usage characteristics of plastic pipe welding machines, handling rules;Knowledge of connecting pipes of different materials to each other;Construction knowledge of flue systems;Knowledge of making a "D" plan;;Skills;;Reading and interpreting a mechanical drawing;Making a mechanical drawing;Reading and interpreting a construction drawing;Making a construction drawing;Reading and interpreting electrical and control network drawings;Preparation of electrical and control network drawings;Reading and interpretation of building engineering piping drawings;Preparation of building engineering piping drawings;Reading and interpreting flowcharts;Reading and interpreting a diagram, nomogram;Filling and making a diagram, nomogram;Basic numeracy;Sense of quantity;;Competences;;Balance perception;Movement coordination;Dexterity;Responsibility;Reliability;Willingness to cooperate in the work;Willingness to compromise;Diligent work;Systematic work;

Units of Learning Outcome 9 (ULO)	Central heating and plumbing tasks
Knowledge & skills	Steel pipe is bent with a hydraulic press;Steel pipe is bent by heating;Steel pipe welding is performed by flame or arc welding;It places the selected radiators, places the fittings;For underfloor heating, it lays pipes and fittings;Lays a wire for electric underfloor heating;Lays pipes and fittings for wall heating and edge heating;Installs control valves and units;Installs the boiler with its fittings;The system is filled with water, checked and deaerated;Repair in case of leakage;Treats boiler water and controls its composition;Drain and drain the heating system;Performs major maintenance and cleaning of heating systems;Performs adjustment of various heating systems;Prepares consumer contracts;;Knowledge;;Technological knowledge and rules of radiator installation;Knowledge of floor, wall and edge heating;Knowledge of heating control valve;Knowledge of boiler;Chimney and air supply, knowledge of heat and flow technology;Knowledge of control structures;Steel pipe welding skills;Regulatory knowledge;Official procedures;Installation and service knowledge;Knowledge of equipment handover;Knowledge of warranty and guarantee conditions;;Skills;;Reading and interpreting a mechanical drawing;Making a mechanical drawing;Reading and interpreting a construction drawing;Making a construction drawing;Reading and interpreting electrical and control network drawings;Preparation of electrical and control network drawings;Reading and interpretation of building engineering piping drawings;Preparation of building engineering piping drawings;Reading and interpreting flowcharts;Reading and interpreting a diagram, nomogram;Filling and making a diagram, nomogram;Basic numeracy;Sense of quantity;;Competences;;Balance perception;Movement coordination;Dexterity;Indication of the type of professional knowledge;;Indicating the level of professional skills;;Willingness to cooperate in the work;Consensus skills;Willingness to compromise

Units of Learning Outcome 10 (ULO)	Plumbing and plumbing installation tasks
Knowledge & skills	;;Develops sewage drainage and collection in non-public areas;Drain and pressurize buildings and parts of buildings;Installs and puts into operation garden irrigation systems;Builds water intakes and stands;Installs and puts into use equipment items;Builds the fire water network;Builds fire water intakes;Checks the fire water network;Checks the elements and operation of the installed extinguishing systems;Assembles, installs, puts into operation, tests automatic fire protection equipment;Assembles, installs, adjusts, inspects, maintains pressure boosting equipment;Installs individual hot water production devices and connects them to the water and sewer network;Installs central hot water generating devices and connects them to the water and sewer network;Builds, puts into operation, controls the circulation network;Installs a water meter;Inspects, repairs, replaces and maintains water fittings;Checks drain and drain fittings, assesses their condition;Disassembles and assembles, repairs, cleans drain and sewer fittings;Cleans the drain line mechanically;Inspects and maintains drain cleaning machines and devices;If necessary, it cleans and disinfects the site;Prepares the working environment for plumbing and drainage work;Prepares the wall groove for the wire;Secures and insulates the wire;Restores the wall surface;Sets a service fee and issues an invoice;Prepares for concluding a consumer contract;;Knowledge;;Drinking water system installation knowledge;Sewage system installation knowledge;Hot water supply system and appliance knowledge;Fire protection system installation knowledge;Disinfection operations and rules;Official procedures;Installation and service knowledge;Knowledge of equipment handover;Knowledge of warranty and guarantee conditions;;Skills;;Reading and interpreting a building engineering drawing;Preparation of building engineering drawing;Basic numeracy;Sense of quantity;;Competences;; ;Good balance ;Movement coordination;Dexterity;Willingness to cooperate in the work;Consensus skills;Willingness to compromise

Hungary - code:		H09
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Stove Technician (FEOR 7637)	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Checks working conditions;Performs on-site measurements;Interpret the content of the available technical documentation;He marches to the workspace with the right tools;Adheres to the order of construction technological processes;Use basic architectural concepts in your work;Ensures professional storage of materials and tools;Checks the materials used;It monitors the continuous supply of materials needed for its work;Ensures that the work area is kept clean;He hands over the work to his employer, withdraws from the work area;Apply and interpret the methods of technical representation;Interprets construction drawings;Use the notation of different structures;It interprets the spatial position of structures;It interprets the content of different levels of documentation and puts them into practice;Reads the necessary data from the drawings during the construction work;Complies with occupational health, safety, fire and environmental regulations;Adheres to, adheres to occupational health regulations;In the event of an accident or emergency, you will take action in accordance with your job;Provides first aid	
TARGET GROUPS ADDRESSED*		
DIDACTIC METHOD (classes, workshops, internships)	30% theory;70% practical	
DURATION OF COURSE	2300 hours, 1 year	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	elementary school	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	http://www.matrixoktatás.hu	
SPONSORING INSTITUTION (keep track of the source of information)	http://www.matrixoktatás.hu/kalvhas.html	

Units of Learning Outcome 1 (ULO)	General tasks and professional knowledge
Knowledge & skills	Knowledge:- Creating the Conditions for commencing and performing the Work;- Knows the general rules for transport and storage of materials;- Knows the tools needed for measuring and setting :- Sequence and context of construction work technology;- Contents of construction plans;- Interpretation of construction documentation;- Occupational safety and accident prevention regulations;- knows First aid;- Personal protective equipment, protective clothing;- Fire protection;- The Environment, Hazardous Waste;- Transport, material handling;- Occupational safety regulations for construction machines;- Properties of building materials and their area of use;- Basic rules of the Labor Code;- Basic conditions of employment;- Entering into an employment contract;- Rights and obligations of employer and employee;- Structure of the itemized budget call;- The concept of business and its role in the economy;- General structure of the enterprise and conditions for its operation;- Business legislation;- Work Diary Management;-Skills;- Understanding a read professional text;- Proficiency in professional language;- Interpretation of architectural symbols;- Reading and interpretation of construction plans;- Use of individual and collective occupational safety equipment;- Interpretation of architectural symbols;- Elementary computer use;- Management of information sources;- Professional numeracy;-Competences;- Accuracy;- Spatial vision;- Drawing skills;- Helpfulness;- Consensus skill;- Skills to cooperate;- Organizing ability;- Problem solving, troubleshooting;

Units of Learning Outcome 2 (ULO)	Professional competencies, Combustion plant installation
Knowledge & skills	Knowledge:- Material requirements calculations;- Measuring and transport equipment, tools, machines;- Safe storage, warehousing and transport of construction materials;- Heat;- Combustion technology;- Ventilation and chimneys;- Professional history, vision;- Combustion plant location selection and designation;- Tiled stoves grouping;- Special stoves;- Grouping of fireplaces;- Passive house, full house heating, heat storage (buffering), surface heating;- Types of ovens and sparhelt;- Requirements for the safe operation of combustion plants;- Specialization;- Environmental load and protection, CO and particulate matter emissions;- Regulations;- Contents, form and warranty of the contractor's declaration and operating instructions;obligation;- Formation, raw materials, properties and use of stove tiles;- Modes of stove tile formation, reactions during drying and firing;- Raw materials and properties of glazes, possible defects and classification of stove tiles;-Skills;Professional speaking skills;Preparation of professional drawing;Professional numeracy;- ;Competences;Independence;Accuracy;Ability to develop;Collection of information;Ability to review;Problem solving

Units of Learning Outcome 3 (ULO)	Combustion plant construction
Knowledge & skills	Knowledge:- Tile stove material, fittings;- Tile stove construction technology;- Process of installing ash door, fuel door, grate;- Requirements for the construction of a fire cabinet and smoke passage;- Seat bench, wood storage design, insulation;- Tile stove reloading processes;- Tile stove cleaning and repair processes;- Materials and fittings for fireplaces;- Technology for building fireplaces;- Materials and fittings for ovens, energy-saving stoves (sparhelt);- Technology for the construction of furnaces and energy-saving stoves;- Special, individual combustion plants;- Hand tools;- Base angle, measuring instruments, spirit level;- Special purpose machines and their safety regulations;-Skills;Professional numeracy;Use of hand tools, small machines;Reading and interpreting sections and structural drawings;-Competences;Dexterity;Accuracy;Physical strength;Interpersonal skills;Organizational skills;

Hungary - code:		H10
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Refrigeration, air conditioning and heat pump equipment installer	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Establishes, installs, repairs and maintains cooling, air conditioning and heat pump equipment and systems.	
TARGET GROUPS ADDRESSED*	Duct fitter;Plumbing network mechanic;HVAC system installer;	
DIDACTIC METHOD (classes, workshops, internships)	30% theory;70% practical	
DURATION OF COURSE	1 year, minimum 240 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	- professional qualification in Refrigeration and ventilation system instalment;- medical certificate	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	Framework vocational training curriculum :—The CXC Act 2011 on national public education, ;—the 2011 CLXXXVII Act on Vocational Training, ;:And ;1. Council Regulation (EC) No 150/2012 of 22 December 2012 on the National Training Register and the procedure for amending the National Training Register (VII. 6) Decree;2. Council Regulation (EC) No 217/2012 of 9 March 2012 on modules of professional requirements for professional qualifications recognised by the State (VIII) Government decree;;3. Regulation 35 582 03 Professional and examination requirements for refrigeration, air conditioning and heat pumping equipment installation certification	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://bfocus.hu/	
SPONSORING INSTITUTION (keep track of the source of information)	http://szakkepesites.hu/okj/tanfolyamok/huto-klima-es-hoszivaltvu-berendezes-szerelo	

Units of Learning Outcome 1 (ULO)	Building engineering electrical installations and control technology
Knowledge & skills	;Knowledge;;Electrotechnical basics;AC and AC networks;Electronic circuits;Safety technology of electrical machinery;Power electronics circuits;Electric measuring instruments;Mechanical measuring instruments;Electrical measurements;Mechanical measurements;Wiring diagrams;Electromagnetic disturbance (EMC);Computer- supported technologies;Basic management technical notion;Management technical bodies, members, equipment;Basics of control and control technology;Characteristics of electrical machinery;;;Skills;;Read and interpret a technical drawing;Diagram, nomogram reading, interpreting;Ink drawing;Use of small machines, hand tools;Use of lab technical equipment;,,,;Competences;;PERSONAL COMPETENCES;Accuracy;Dexterity ;SOCIAL COMPETENCES;Firmness ;Relationship skills ;METHOD COMPETENCIES;Ability to organize;Practical task-based ;Troubleshooting

Units of Learning Outcome 2 (ULO)	Cooling and heat pump equipment
Knowledge & skills	Knowledge;;Repairs, post-amendment security reviews;Administrative procedures;Technical and administrative rules for service work;Basic rules and rules for technical transfers of equipment;Cooling circuit installation technology basics, rules;Maintenance;Application characteristics and rules of use of insulating materials;Refrigeration equipment - technology, adjustment characteristics management rules;Refrigerant and its rules of application;Debugging and repairing;Excipients, oils;;;Skills;;Reading, interpreting and making of building engineering pipe network diagrams;Reading and interpreting flowcharts;Diagram, nomogram reading, interpreting;Professional counting skills;Understanding professional foreign language terms;;Competences;;PERSONAL COMPETENCES;Dexterity;Accuracy;Precision;SOCIAL COMPETENCES;Overview capability;Logical thinking;Firmness;METHOD COMPETENCIES;Practical task- based;Thinking about the system;Troubleshooting;

Units of Learning Outcome 3 (ULO)	Aeronautical equipment installation and repair
Knowledge & skills	;Knowledge;;Pipe installation;Repairs, post-amendment security reviews;Environment;Administrative procedures;Technical and administrative rules for service work;Basic rules and rules for technical transfers of equipment;Climate technology;Climate system installation technologies, rules;Maintenance;Application characteristics and rules of use of insulating materials;Knowledge of air conditioners, technological and adjustment characteristics management rules;Debugging and repairing;;;Skills;;Reading and interpreting electrical and control network diagrams;Reading, interpreting and making of building engineering pipe network diagrams;Reading and interpreting flowcharts;Diagram, nomogram reading, interpreting;Understanding professional foreign language terms;;Competences;;PERSONAL COMPETENCES;Dexterity;Accuracy;Precision;SOCIAL COMPETENCES;Logical thinking;Applying knowledge to the place of knowledge;Firmness;METHOD COMPETENCIES;Practical task-based;Thinking about the system;Troubleshooting;

Hungary - code:		H11
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Refrigeration, air conditioning technician	
EQF Level , if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Provides the conditions for continuous and safe work;Prepare work;Performs basic fittings;Installs machine units;Installs refrigeration equipment;Installs primary cooling circuit networks and auxiliary equipment;Handles primer refrigerant;Performs electrical installations;Provides the conditions for commissioning;It will put the equipment into operation;Do trial run.;Performs maintenance and repairs;Employs closed-circuit installation technology	
TARGET GROUPS ADDRESSED*	Duct fitter;Plumbing network mechanic;HVAC system installer;	
DIDACTIC METHOD (classes, workshops, internships)	30% theory;70% practical	
DURATION OF COURSE	1 year, minimum 240 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	medical certificate	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	The central programme;– Act LXXIX of 1993 on public education, as amended several times.;– Act LXXVI of 1993 on vocational training, as amended several times.;– Law CXXI of 1999 on chambers of commerce, as amended several times.;;Government No 133/2010 (IV. 22) Korm.'s Regulation on the National Training Register and the;Procedure for amending the National Training Register;on the conditions for the start and pursuit of vocational training and on the;8/2006 on the Advisory Board of the Vocational Training Centre (III. 23) OM Regulation.;Council Regulation (EC) No 4/2002 of 26 June 2002 on the allowances for pupils participating in vocational training in the school system (II. 26);OM Regulation.;Regulation (EC) No 20/2007 of the European Parliament and of the Council of 20 March 2007 on the general rules and procedures for professional examinations(10) is to be amended as set out in the Annex to this Regulation;;(V) Council Regulation (EC) No 1255/1999 of 17 May SMM Regulation;;33 522 02 0000 00 00 00 Refrigeration and air conditioning installation and maintenance professional qualification;Ministerial Decree on professional qualifications and examination requirements	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://oktatozone.hu/huto-legtechnika-okj/	
SPONSORING INSTITUTION (keep track of the source of information)	https://szakkepeses.hu/okj/tanfolyamok/huto-es-legtechnikai-rendszerszerelo	

Units of Learning Outcome 1 (ULO)	General pipe installation tasks
Knowledge & skills	;Knowledge;;Safety technology of mounting racks, walk-ups and ladders;Types of pipe network installation;Characteristics of use of sealants, rules of application;General building knowledge;Types of structural units of buildings, methods of static evaluation;Thermal properties of building structures;Application characteristics of supporting structures and frame structures;Disk conversion technology;Pipe materials, pipe structures, fittings, fittings;Mechanic masonry skills;Safety technology for moving heavy objects;;Skills;;Technical drawing reading skills;Pipe network drawing skills;Elementary counting skills;;Competences;;Motion coordination;Tolerance;Accuracy;Precision;Patience;Willingness to work together;Logical thinking;Caution, caution;Design capability;Practical task-based;Method of working;

Units of Learning Outcome 2 (ULO)	Air conditioning and air conditioning installation tasks;
Knowledge & skills	Knowledge;;Basics of building electrical system installation;Methods of air conditioning;Construction, elements and installation methods of air conditioners;Acoustic and vibration measurement methods;Aeronautical measurement methods;Safety technology for the installation of heavy machinery;Characteristics of use of lubricants, rules of application;Methods of maintenance of air-conditioning systems and air conditioners;;Skills;;5 Use of air and air-conditioning equipment;4 Dexterity;4 Understanding colloquial and professional heard text;3 Technical drawing reading skills;;Competences;;Motion coordination;Dexterity;Willingness to work together;Willingness to compromise;Caution, caution;Method of working;;

Units of Learning Outcome 3 (ULO)	Refrigeration and air conditioning installation and maintenance tasks
Knowledge & skills	Knowledge::Rules for electrical connection of air conditioners;Installation of electrical networks and equipment;Characteristics and regulations of the control of the air conditioner;Repairs, post-amendment security reviews;Environment;Official procedure knowledge;Technical and administrative rules for service work;Knowledge and rules on technical transfer of equipment;Refrigeration;Cooling circuit installation technology knowledge, rules;Maintenance;Application characteristics and rules of use of insulating materials;Knowledge of refrigeration equipment, technological and adjustment characteristics management rules;Compactness test operation rules;Knowledge and application rules for refrigerant;Debugging and repairing;Exciipients, oils;Knowledge of building engineering systems;Warranty and warranty conditions, rules;Reading and interpreting mechanical drawings;Mechanical drawings;Reading and interpreting a building drawing;Building drawings;Skills;;3 Reading and interpreting mechanical drawings;3 Mechanical drawings;3 Reading and interpreting a building drawing;3 Building drawings;3 Reading and interpreting electrical and control network diagrams;3 Making electrical and control network diagrams;3 Reading and interpreting building engineering pipe network diagrams;3 Building engineering pipe network diagrams;3 Reading and interpreting flowcharts;3 Reading and interpreting a diagram, nomogram;3 Diagram, nomogram filling, making;3 Elementary counting skills;3 Sense of quantity;;Competences;;Stamina;Dexterity;Stable hand holding;Accuracy;Precision;Overview capability;Logical thinking;Applying knowledge to the place of knowledge;Firmness;Practical task-based;Debugging (diagnosing);Thinking about the system;Exploring causes;Troubleshooting;;
Units of Learning Outcome 4 (ULO)	Basic tasks in building engineering
Knowledge & skills	Knowledge::Basic concept of machine design, characteristics of mechanical drawings, rules for interpretation and drawing;Options for flat-measure editing procedures;Usual areas of use and rules for the preparation of representations;Welding drawing marks, welding diagrams;Electrical, pipe and control drawing marks;Standard rules for interpreting and preparing charts and character curves;Standard, operational instructions, standard structure and content characteristics of manuals;Concept and use of general building engineering units in measurements and calculations;Conception, conversion, use of other units of measurement and calculation;Mechanical, thermal, electrical, corrosion and other properties of building materials;Characteristics of use and technology operating rules of arc welding machines;Characteristics of use of flame welding equipment, technological operation rules;Characteristics of use of welding materials, aids and auxiliary equipment;Mechanical basics;Basic static and dynamic calculations;Basic building engineering flow and thermal calculations;Basic electrical knowledge and calculations;Rules for measuring and checking length sizes and angles by general means;Measurements and checks of shape and position accuracy with general devices;possibilities of application;Applying drawing tools, rules;Grating, sawing, hand tool sharpening grinding, threading application, operating rule;Apply manual fluid shapes, action rules;Manual and small machine cutting application, operating rules;Structural and usage characteristics of soluble joints;Structural and usage characteristics of non-soluble joints;Soldering technology, tools and equipment;Basic touch protection;Safety requirements for the use of tools and small machinery;Gas welding safety requirements;Arc welding safety requirements;Safety technology for other welding and soldering processes;Safety technology for machine operation;Handling safety technology;Features of a building engineering plan;Building engineering design signs;Basic corrosion protection procedures;Basic knowledge of the work, health, fire and environment of building engineering work processes;Basic knowledge of economic, labour law and organisation of work;;Skills;;2 Use of basic electrical mounting and measuring equipment;4 Use of general manual mounting tools;4 Use of pipe mounting hand tools;3 Use of general hand-held small machines;;Competences;;Stable hand holding;Precision;Dexterity;Relationship skills;Drafting skills;Presentation skills;Rule-following behaviour;Method of working;;

Hungary - code:		H12
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Operator of renewable energy generating equipment	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The operator of renewable energy generating equipment is involved in the installation of a small power plant using renewable energy in the preparation and operation of the grid connection. It designs the workflow, materials, tools, and human resources. He uses electrical gauges, he does measurements. On DC, single- and three-phase systems, electrical quantities are measured. It does not measure electrical quantities. It installs, operates, repairs electrical machines. He's installing a wind generator, checking, operating. He's installing a biogas plant, checking it, operating it. It installs, operates, repairs transformers. Installs asynchronous machines, operates, repairs. It operates and repairs DC machines. It installs, operates, repairs synchronous machines. It installs solar panels, operates, repairs errors. It installs, regulates, operates, repairs errors. It installs protections and controls the specified parameters. It installs control and control devices. Battery charger, battery charger, battery pack, operation, check. Prepares the power connection for the small power plant. Checks the completed small power plant, contributes to the connection of the small power plant to the grid	
TARGET GROUPS ADDRESSED*	engineers;electrician;	
DIDACTIC METHOD (classes, workshops, internships)	60% theory, 40% practice	
DURATION OF COURSE	400 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	;Professional training;;34 522 04 Electrical or secondary or tertiary high-current education;;Prescribed practice;;traineeship in a minimum of 2 years in the role of operator	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Feor No.;7524;;Name of Feor;Building electrician, electrician	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	http://www.matrixoktatás.hu/meguulo-energiatermelo-berendezes-uzemelteto.html	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	;Control and operation of a small renewable energy plant;
Knowledge & skills	read, interpret, interpret of technical drawings; apply general rules relating to work;; apply quality assurance standards at work;; determine the order of operations and the material needs to be used;; select the tools, tools, tools, tools, tools;; draw sketches of work operations;; the use of small machines, hand tools for basic technological operations;; keep a building log of the completion of work tasks;; to set up a small renewable energy plant;; to install and control protections with the specified parameters;; installing control and control devices;; prepare the grid connection of a small power plant;; perform a check-through;; perform a state checker crawl;; measure the electrical and non-electric parameters of the small power plant;; document the results of the inspections;; keep an operating log;; carry out on-the-spot supervision of other non-electrical works;; check the operating status of the devices;; operate a small power plant;; repair of defective equipment;; prepare de-energization instructions;; make a switching order;; de-energisation on the instructions of the operating controller;; to carry out a delimiting error;; carry out the transfer of the work area;; signals of protections, automations, interpret;; the causes of the fault, to repair, repair and repair the faulty equipment;; communicate with plant controllers;; fire safety and safety rules in the course of its work;;

Units of Learning Outcome 2 (ULO)	Installation of a small renewable power plant;
Knowledge & skills	read, interpret, interpret of technical drawings; apply general rules relating to work;; apply quality assurance standards at work;; determine the order of operations and the material needs to be used;; select the tools, tools, tools, tools, tools;; draw sketches of work operations;; the use of small machines, hand tools for basic technological operations;; keep a building log of the completion of work tasks;; to set up a small renewable energy plant;; to install and control protections with the specified parameters;; installing control and control devices;; prepare the grid connection of a small power plant;; perform a check-through;; perform a state checker crawl;; measure the electrical and non-electric parameters of the small power plant;; document the results of the inspections;; keep an operating log;; carry out on-the-spot supervision of other non-electrical works;; check the operating status of the devices;; operate a small power plant;; repair of defective equipment;; prepare de-energization instructions;; make a switching order;; de-energisation on the instructions of the operating controller;; to carry out a delimiting error;; carry out the transfer of the work area;; signals of protections, automations, interpret;; the causes of the fault, to repair, repair and repair the faulty equipment;; communicate with plant controllers;; fire safety and safety rules in the course of its work;;

Units of Learning Outcome 3 (ULO)	Preparation and transfer of work;
Knowledge & skills	read, interpret, interpret of technical drawings; apply general rules relating to work;; apply quality assurance standards at work;; determine the order of operations and the material needs to be used;; select the tools, tools, tools, tools, tools;; draw sketches of work operations;; the use of small machines, hand tools for basic technological operations;; keep a building log of the completion of work tasks;; to set up a small renewable energy plant;; to install and control protections with the specified parameters;; installing control and control devices;; prepare the grid connection of a small power plant;; perform a check-through;; perform a state checker crawl;; measure the electrical and non-electric parameters of the small power plant;; document the results of the inspections;; keep an operating log;; carry out on-the-spot supervision of other non-electrical works;; check the operating status of the devices;; operate a small power plant;; repair of defective equipment;; prepare de-energization instructions;; make a switching order;; de-energisation on the instructions of the operating controller;; to carry out a delimiting error;; carry out the transfer of the work area;; signals of protections, automations, interpret;; the causes of the fault, to repair, repair and repair the faulty equipment;; communicate with plant controllers;; fire safety and safety rules in the course of its work;;

Hungary - code:		H13
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*		Roofing expert
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)		The roofing specialist prepares, repairs and maintains the roofing of buildings. Using various roofing materials and installing thermal and moisture layers under the roof;- Performs preparatory work;- inspects the carpentry work and prepares the covering;- Plans the roofing work stages;- Creates the safe working environment :- prepares the materials;- roofing;- makes a thatched roof with an archaic construction technique;Performs post- production;Performs administrative work;Performs retrofitting roofs
TARGET GROUPS ADDRESSED*		
DIDACTIC METHOD (classes, workshops, internships)		30% theory;70% practical
DURATION OF COURSE		1 year
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		- possessing previous possessing architectural professional competencies. OR 8-grade primary school certificate;- medical certificate;- Professional aptitude test
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		none
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		- Act CXCV of 2011 on National Public Education,;- Act CLXXXVII of 2011 on vocational training;Government Decree of 133/2010. (IV. 22.) on the National Training Register and the procedure for amending the National Training Register, Decree of the Ministry of Education 8/2006 on the conditions for starting and continuing vocational training and the advisory board of the regional integrated vocational training center. (III. 23.), Decree of the Ministry of Education 4/2002 on benefits for students in vocational training in the school system. (II. 26.);Decree 20/2007 by the Ministry of Social Affairs and Labor on the general rules and procedures of professional examinations. (V. 21.);- Ministerial Decree responsible for the vocational qualification containing the professional and examination requirements for a roofing qualification (31 582 17 0000 00 00)
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*		http://www.matrixoktatás.hu/
SPONSORING INSTITUTION (keep track of the source of information)		http://www.matrixoktatás.hu/tetofedo.html http://szakkepésites.hu/okj/tanfolyamok/tetofedo ; http://www.matrixoktatás.hu/tetofedo.html

Units of Learning Outcome 1 (ULO)	Technical skills, construction 'common' tasks
Knowledge & skills	- visual inspection and adjustment of the flatness of the roof plane;- preparation of roofing substrates and calculation of material requirements;- drawing of the roof profile, calculation of the real surfaces of the roof;- preparation of washer substrates, recognition and use of their types;- calculation of roof beam distance, rafter length;- safe use of measuring devices, roofing tools, small machines;- installation of roof windows;- calculation of cross-sections of a ventilated roof air gap;- compliance with the prescribed occupational safety regulations for roofing and underlayment;- inspection of carpentry, tinsmith structures and preparation of coverings;- organizing a safe working environment;- preparation and professional use of various materials used for roofing;- placement of insulating materials and foils;- repair of roof coverings;- maintenance and cleaning of the work area, tools and implements;- observance and enforcement of fire safety and occupational safety rules;- proper disposal of waste, hazardous waste;- act in accordance with regulations in the event of an accident;;Knowledge;;Surveys the work area and conducts site tours;Assess the feasibility of the work task over time, plan the work process;Calculates material requirements;Provides the necessary materials, tools, machines;Checks the materials used;Approaches work area with the right tools and manpower;Consults with the designer, representatives of other professions involved in the construction, customers;Performs on-site measurements;Interprets construction and technology plans;Sketching based on plans;Ensures that the work area is kept clean at all times;Collects and professionally stores the generated waste;Provides professional storage of materials and tools;keeps appropriate work diary ;participates in occupational safety, fire and environmental education;Checks occupational safety equipment;Use (provide) the required safety equipment;ensures the order, accident-free and protection of the work area;Observes special occupational safety regulations;It assesses hazards and health hazards;In the event of an accident or emergency, takes action in accordance with your job;Complies with monument protection, environmental protection and other legislation;takes the necessary action in relation to the pollution that has occurred;Participates in the compilation of invoices;;Quantification of substances;Order documents;Transport;Conditions for starting work;Workspace handover rules;Documentation of work performed;Waste management;Quantity of material, calculation of material requirements;Construction schedules (session, headcount schedules);type of professional knowledge;;vocational qualification requirement modules;Construction documentation (construction log, survey log);Occupational safety and accident prevention regulations;First aid;Fire protection;Storage, transport and handling of flammable materials;Regulatory requirements;Use of protective clothing;Environmental Protection;Survey rules;Construction plans;;Skills;;Elementary computer use;Basic numeracy;Comprehension of plain text read;Common language

Units of Learning Outcome 2 (ULO)	Roofing tasks
Knowledge & skills	Determines the type and number of accessories;Visually inspect the straightness of the roof plane;Performs film overlays as needed;Makes board coverings;Creates slats;If necessary, create a countersink;Checks the base of the shell;Selects the starting point;Designates the openings for rent;Determines the location of accessories (snow blowers, snow plows, vents);Delivers the roofing material to the work area (by hand; elevator, auger, crane;with the help of);Cuts the cover materials to size and prepares them for fixing;Place the accessories to be covered;Displays the starting line;Makes cover;Cuts the edges;Cuts the covers to the bends and the edge ridge;Fastens the cut covers;It places the accessories over the roofing material;Locates and secures the spine elements;connects shells to masonry, carpentry and finsmithing;Cleans the workspace;Place the spare cover in the attic;He binds reeds; fixes reed knots;Nail ridge and roof;Checks the finished work;Checks the integrity of built-in materials;Visually inspect the aesthetic appearance of the roof;Corrects any errors found;Arranges the workspace ;Finds the location of errors;Determines the cause of the error;Specifies the repair method;if necessary, prepare a cover material for the replacement;Replace the faulty item;Maintains and cleans roof accessories (drains, gutters);;Knowledge::;General properties of building materials;Natural architectural materials;Construction binders;Mortars;Construction plastic products;Building ceramic products;Water, heat and sound insulating materials;Metals;Wood species for industrial use, wood materials, industrial assortments;Burnt clay;Types of tiles;Slate properties, areas of use;Properties of shingles, areas of application;Flat plate properties, areas of application;Properties of tavernas, areas of use;Types of accessories;Use of other materials (foils, insulation materials);Length and area measurement;Laying of roofing materials;Roofing work calculations;Standards and standard marking systems;Sizing methods, edits;Technical regulations, operating, application technical instructions;Scaffolding;Material testing;Types of roof structures, their coverage;Insulation methods;Roof and floor structures;Assembly hand tools;Special tools;Measuring and control devices;Marking devices;Material handling equipment;Roof ladders, scaffolding, canopies;Steps of covering, cone, transhipment, replacement;Reed bindings, knotting;Types and technology of insulation;Cladding;Repair and maintenance of structures;Reinforcement, preparation of protective layers;Lathing, boarding;Steps to unlock the starting line;Cutting, chopping, cutting, drilling, screwing;Fastening, cording;Gluing, welding, fixing, loading;Keeping workflow logs;Construction, size and quality control;;Skills::;Comprehension of plain text read;Wording of common language text in writing;Handwriting;Post-hearing comprehension of common language text;Common language skills;Understanding read professional text;Professional language writing skills, wording in writing;Comprehension of heard text in professional language;Proficiency in professional language;Reading and
Units of Learning Outcome 3 (ULO)	General business tasks
Knowledge & skills	Make a simple quote;Provides the necessary business conditions for its activities;Advertises, recommends its activities and provides information;Keeps in touch with customers;Deals with complaints;It issues an invoice for the work done;Performs simple start-up and operation tasks of an individual business;Participates in the operation of a smaller joint venture;Find out about market needs;By shaping its scope of activities, it adapts flexibly to technology;changes;;Knowledge::;Basic labor law (employer, employee);Business legislation;Accounting, tax and financial knowledge required for business;Invoicing;;Skills::;Elementary computer use;Management of information sources;Basic numeracy;;Competences::;Developmental ability, self-development;Flexibility;Interpersonal flexibility;Situation recognition;Open attitude

Hungary - code:		H14
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Training of installer and maintainer of low-power solar power plants	
EQF Level, if any	3	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The professional is capable of , below 50 kW, installation and maintenance of solar power plants during the period of operation in such a way as to ensure maximum performance and operational safety. During the preparation of the installation, it designs or selects the elements of the photovoltaic system necessary for the design, taking into account the necessary performance, preparing the authorisation procedure.;;Selects the installation location, determines the orientation of the system to install. ;;It provides the necessary materials and equipment. It performs the placement and attachment of the supporting structures. It professionally places the solar modules, attaches them and connects them. It inserts control elements, inverters, switch boxes, measuring units, and other auxiliary units into the system. It installs solar-powered systems in island and grid feed mode, taking into account work and property protection regulations. It carries out the transfer of the solar-powered electricity plant to the grid. It supervises the electric power plant and contributes to the guarantee of the required power outputs with regular maintenance.;;	
TARGET GROUPS ADDRESSED*	engineers;electrician;solar power experts	
DIDACTIC METHOD (classes, workshops, internships)	144 hours (max);theory 30%;practice 70%	
DURATION OF COURSE		
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	- primary education;- 34 522 02 Electrician OKJ or 34 522 04 Electrician OKJ;- one year's proven professional experience in the field of civil engineering, electrical or electrical machinery and equipment installation.;;- occupational health aptitude test	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	none	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	7. Industrial and construction occupations;;7524 Building electrician, electrician Installer and maintainer of low-power solar power plants	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	http://felnottkepzes.hu/kis-teljesitmenyu-szolar-villamos-eromuvek-telepitoja-karbantartoja-szpk.html	
SPONSORING INSTITUTION (keep track of the source of information)		

Units of Learning Outcome 1 (ULO)	Basic knowledge of renewable energy and repair
Knowledge & skills	;;Knowledge;;Familiar with photovoltaic electrical power generation essence, importance and Modalities. Can you placed on solar power recovery from renewable energy system.;;Familiar with silicon crystalline solar powered modules, principle of operation;;Familiar with the calculation of power, performance and surface area for azamorphic, mono- and polycrystal solar modules. He knows the possibilities of placing solar modules on the building, the importance and requirements of its correct orientation.;;Understands the role, function and various application possibilities of support structures, fasteners. Know the role and task of connectors, control and accessories;;Knows the types of measuring devices used in technology, how to handle them. He is familiar with the legal regulations for the installation of solar power plants, as well as technical and other documentation for installation.;;Skills;;It is able to formulate the benefits and benefits of solar energy use for customers. It is able to select, receive and control the most appropriate solar panels and solar system units for the performance ordered.;;It is capable of selecting and designing the installation site of solar energy in a technical way, and of preparing a draft installation plan. It is able to assign the most efficient conditions to solar energy performance indicators.;;It can choose the most appropriate recording technology for installation and define the elements and tools needed for this.;;Can handle technology metering devices;;It is capable of preparing documentation for the procedure for the application and authorisation of solar small power plants.;;Competences;;Feels responsible for environmental awareness.;;It independently proposes to the user the choice of the right solar panels for it.;;Consults with the ordering party.;;Feels responsible for improving the country's energy situation.;;The selection follows technical and safety regulations.;;

Units of Learning Outcome 2 (ULO)	Solar installation and repair ;;Knowledge;;Familiar with low power (below 50 Kw) solar;technological process of installing systems;;Know the importance and rules of preparing the installation site;;Knows the installation options taking into account external conditions (expected wind and snow load, growing wood, nearby production plant, etc.);;It has knowledge of the possibilities of using different support structures;;Know the connectivity options for solar modules;;It knows the purpose and possibilities of creating strings (interconnected solar module lines);;Know the task and types of connecting elements, collector and distribution boxes;and the criteria for their selection;;Know the task of the inverter, conditions for its selection;;Know the essence, advantages and limitations of installing a low-power island electric solar power plant;;In the case of a low-power electric solar power plant that feeds the mains, it has knowledge of the materials and equipment necessary for installation and knows the rules for the use of measuring and monitoring equipment for professional installation;;In the case of a low-power power solar power plant powered by the mains, it knows and understands the technical, legal requirements of the applicable technology, the fixing control and measuring elements, for a network;connection to the device;;Familiar with the related work and safety;Standards. Are you familiar with low-performance installed;existing or originating in the systems hazards and the need to eliminate potential damage. Solutions;;Recognizes the risk of imminent emergency;(fire hazard, risk of electric shock, filling liquid (battery), installation, installation, maintenance waste);;Familiar with the conditions for the technical closure and transfer of the installed system;;Skills;;Prepares a construction plan, defines the materials and resources needed for installation;It is able to prepare the installation site professionally, choosing the most suitable of the available installation options. It is able to install solar panels on oblique roof, flat roof, vertical surface, free ground;;It is capable of selecting and fixing the most suitable support for the installation option;;It is capable of technically checking, receiving and securely securing the solar modules that meet the performance needs;;Capable of scaling and forming the necessary strings;It is capable of serial or parallel coupling;;Capable of selecting the right power and type of inverter, determining the optimal setting-up location and inserting it into the system;;Capable of self-installing the island-fueled system, selecting the right battery and fitting it into the system;;Capable of taking and documenting the necessary measurements during installation and technical handover to the owner of the system;and the necessary safety measures.
Units of Learning Outcome 3 (ULO)	Supervision and maintenance of solar systems: ;;Knowledge;;He is familiar with the customer's operational tasks, as well as the servicing and maintenance tasks that arise during the operation;;You are familiar with the tasks that can be scheduled for maintenance;;You are familiar with the technologies needed to perform the maintenance task, materials, measuring and control tools;;He is familiar with the meaning of the monitoring and signaling data necessary for economical and safe operation, the inverter display system, the aspects of the data display;;He knows the possibilities and characteristics of special events (special impurities, appearance of shadow effects, mechanical damage) that adversely affect the operation and operating conditions of the system;;You are familiar with the documentation tasks of the maintenance activity;;Skills;;You can educate the responsible people on the tasks of maintenance management;;On the basis of a separate maintenance contract, the installed system is technically observed and maintained;;Prepare, execute, or verify the implementation of a maintenance plan;;According to maintenance technologies, you can perform it professionally;;regular cleaning of energy receiving surfaces;;Verification and, if necessary, reinforcement of mechanical anchorages;;Check the electrical contact potential of the connecting elements;;In island mode, check the status of the battery, charge it as needed, replace it;;Capable of carrying out monitoring measurements (inverter, solar panel units, other measuring locations as necessary), reading, recording, analyzing performance indicators, based on which maintenance tasks;self-formulation and performance;;It can troubleshoot, replace a damaged unit, or contact your immediate supervisor;in the event of an unusual change in operating conditions;;It is able to keep the maintenance log regularly and regularly;;Competences;;In order to operate it professionally and efficiently, it requires cooperation with the owners of the installed power plant. ;You feel responsible for the safe operation of the installed solar power plant;;performance outputs;;It is prescient, striving to ensure efficient and smooth operation;;You feel responsible for the safe operation of the installed solar power plant;;performance outputs;;It considers itself bound to carry out regular scheduled inspections;;It can decide on its own in the event of malfunctions;;It assumes responsibility for averting obstacles to continuous and efficient operation within the time limit;;Precision and responsibility characterize your control activities;;Based on the observations and measurements, he can independently formulate the

4 ANNEX – PROFESSIONAL QUALIFICATIONS OF ITALY

ITALY - code:	 I01
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Protocollo ITACA Expert
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Esperto Protocollo ITACA is a professional able to assess the sustainability level of buildings through the application of the Protocollo ITACA system.
TARGET GROUPS ADDRESSED*	Designers (architects and engineers)
DIDACTIC METHOD (classes, workshops, internships)	Course Breakdown: MODULE 1 (8 hours) -Sustainability assessment in constructions through the application of PROTOCOLLO ITACA (SBTool Assessment Method) -Protocollo ITACA and integrated design MODULE 2 (8 hours) -Relationship among building and urban context -Construction materials -Potable and waste water -Service quality and controllability of technical plants MODULE 3 (8 hours) -Energy and emissions MODULE 4 (8 hours) -Environmental quality
DURATION OF COURSE	32 hours (theoretical lessons) + 4 hours (final exam)
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	It is preferable to have a degree in architecture and/or engineering. Comprehensive knowledge concerning sustainability.
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	No
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Yes, once passed the final exam, the professional is added to the iISBE Italia register of Protocollo ITACA Expert http://www.iisbeitalia.org/formazione/esperti-protocollo-itaca/residenziale
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	Calabria Region: Allegato 1 DGR n. 581 del 23/11/17 - Disciplina Tecnica L.R. 41/2011
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	http://www.iisbeitalia.org/
SPONSORING INSTITUTION (keep track of the source of information)	All the Italian Regions who have adopted the Protocollo ITACA

Units of Learning Outcome 1 (ULO)	LAND USE
Knowledge & skills	Understand the importance of the reduction of land use encouraging the re-use of the soil already compromised; • General knowledge related to the land consumption aspects and to the urban planning; ; Ability to apply the assessment method for the calculation of the indicator related to the land consumption.

Units of Learning Outcome 2 (ULO)	ACCESSIBILITY AND LOCALISATION
Knowledge & skills	Determine the accessibility to the public transport •General knowledge related to the importance to reduce the use of private vehicles; ; Ability to apply the assessment method for the calculation of the indicator related to the accessibility to the public transport. Determine the functional mix (commercial, culture, services, sports, etc.) in the area analysed •General knowledge related to the benefits generated by a high functional mix; ; Ability to apply the assessment method for the calculation of the indicator related to the functional mix. Promote the construction of buildings in proximity of the existing infrastructure networks •General knowledge related to the analysis of the technical map showing the distribution of the infrastructure networks;; Ability to apply the assessment method for the calculation of the indicator related to the evaluation of the proximity to the infrastructure networks. Evaluate the installation of parking spaces for bicycles

Units of Learning Outcome 3 (ULO)	WATER-SAVING
Knowledge & skills	Evaluate the performance of the building with regard to the potable water reduction for irrigation •General knowledge related to the water requirement in buildings and water-saving systems for irrigation;; Knowledge about the UNI/TS 11445, standard and applications;; Ability to apply the assessment method for the calculation of the indicator related to the accessibility to the potable water reduction for irrigation. Evaluate the performance of the building with regard to the potable water reduction for indoor uses •General knowledge related to the water requirement in buildings and water-saving systems for indoor uses;; Knowledge concerning per capita water consumption for the main domestic activities;; Ability to apply the assessment method for the calculation of the indicator related to the accessibility to the potable water reduction for indoor uses.

Units of Learning Outcome 4 (ULO)	SUSTAINABLE BUILDING MATERIALS (IS7) – PROF/TRAC
Knowledge & skills	Evaluate the use of recycled and recovered materials in a building construction •General knowledge related to the recycled and recovered materials for buildings construction;; Knowledge about UNI EN 15804, Environmental Product Declarations (EPDs);; Knowledge about ISO 14025, Environmental Impact Statement;; Knowledge about ISO 14021, Self-declaration of Environmental Impact Product;; Knowledge about ISO/IEC 17020, Conformity Assessment;; Ability to apply the assessment method for the calculation of the indicator related to the use of recycled materials. Evaluate the use of materials from renewable sources in a building construction •General knowledge related to the definition of renewable sources and about materials for buildings construction resulting from renewable sources;; Knowledge about UNI EN 15804, Environmental Product Declarations (EPDs);; Knowledge about ISO 14025, Environmental Impact Statement;; Knowledge about ISO 14021, Self-declaration of Environmental Impact Product;; Ability to apply the assessment method for the calculation of the indicator related to the use of renewable sources materials in building construction. Determine the presence of certified materials in the building and their use •General knowledge related to the environmental labels and declarations for materials in a building construction;; Knowledge about the typology of certifications for building materials;; Knowledge about UNI EN ISO 14024, Ecolabelling;; Knowledge about UNI EN 15804, Environmental Product Declarations (EPDs);; Knowledge about ISO 14025, Environmental Impact Statement;; Ability to apply the assessment method for the calculation of the indicator related to the certified materials in building construction.

Units of Learning Outcome 5 (ULO)	ENERGY PRODUCTION (EP) – PROF/TRAC
Knowledge & skills	Evaluate the energy performance of the building during the operational phase •General knowledge related to the total energy performance and the primary energy demand of the building;; Knowledge about DM 26/06/2015, Adaptation of national guidelines for energy certification of buildings;; Comprehension of the technical report content of the Italian Law 10/91;; Ability to apply the assessment method for the calculation of the indicator related to the non-renewable total primary energy demand;; Ability to apply the assessment method for the calculation of the indicator related to the total primary energy demand. Determine the share of renewable energy for thermal uses •General knowledge related to the thermal energy performance of the building;; General knowledge about energy from renewable sources;; Knowledge about D.Lgs. 28/2011 and ss.mm.ii, Directive concerning the promotion of the use of energy from renewable sources;; Comprehension of the technical report content of the Italian Law 10/91;; Ability to apply the assessment method for the calculation of the indicator related to the renewable energy for thermal uses. Determine the share of renewable energy for electrical uses •General knowledge related to the electrical energy performance of the building;; General knowledge about energy from renewable sources;; Knowledge about D.Lgs. 28/2011 and ss.mm.ii, Directive concerning the promotion of the use of energy from renewable sources;; Comprehension of the technical report content of the Italian Law 10/91;; Ability to apply the assessment method for the calculation of the indicator related to the renewable energy for electrical uses. Evaluate the thermal energy demand for heating and cooling •General knowledge related to the thermal energy performance and the primary energy demand of the building;; Knowledge about DM 26/06/2015, Adaptation of national guidelines for energy certification of buildings;; Comprehension of the technical report content of the Italian Law 10/91;; Knowledge about the D.Lgs. 92/2005 and ss.mm.ii, Directive on the energy performance of buildings;; Ability to apply the assessment method for the calculation of the indicator related to the thermal energy demand for heating;; Ability to apply the assessment method for the calculation of the indicator related to the thermal energy demand for cooling.

Units of Learning Outcome 6 (ULO)	HEATING AND COOLING EMISSION SYSTEMS (ER7) – PROF/TRAC
Knowledge & skills	Evaluate the energy emissions of the building during the operational phase •General knowledge related to the CO2 emissions produced for the building operation;; Knowledge about the CO2 emission factors of the main energy carriers;; Comprehension of the technical report content of the Italian Law 10/91;; Knowledge about DM 26/06/2015, Adaptation of national guidelines for energy certification of buildings;; Ability to apply the assessment method for the calculation of the indicator related to the energy emissions of the building during the operational phase. Determine soil permeability •General knowledge related to the importance to reduce soil sealing improving the permeability of water through the soil;; Knowledge about permeability coefficients related to the typologies of surface;; Ability to apply the assessment method for the calculation of the indicator related to the soil permeability.

Units of Learning Outcome 7 (ULO)	ENVIRONMENTAL (INDOOR) QUALITY (IS9) – PROF/TRAC
Knowledge & skills	Evaluate the ventilation and the indoor air quality •General knowledge concerning aspects related to the natural and mechanical ventilation in buildings;; Knowledge about UNI EN 15251, criteria for the design of the indoor environment;; Knowledge about UNI 10339, air exchange in air-to-air systems;; Knowledge about UNI/TS 11300-1, energy performance in buildings;; Ability to apply the assessment method for the calculation of the indicator related to the ventilation and indoor air quality. Evaluate the operating temperature during summertime •General knowledge concerning aspects related to the natural and mechanical ventilation in buildings;; Knowledge about UNI EN 15251, criteria for the design of the indoor environment;; Knowledge about UNI 10339, air exchange in air-to-air systems;; Knowledge about UNI/TS 11300-1, energy performance in buildings;; Ability to apply the assessment method for the calculation of the indicator related to the ventilation and indoor air quality. Evaluate the summertime indoor thermal comfort •General knowledge concerning indoor thermal comfort parameters;; Knowledge about UNI 10375, calculation method of the indoor summertime temperature;; Knowledge about UNI/TR 10349-2, heating and cooling of buildings;; Knowledge about UNI EN ISO 52016-1, energy performance of buildings - energy demand for heating and cooling;; Knowledge about UNI EN 15251, criteria for the design of the indoor environment;; Ability to apply the assessment method for the calculation of the indicator related to the summertime indoor thermal comfort. Evaluate the level of natural lighting in buildings •General knowledge concerning values of mean daylight factor;; Knowledge about UNI 10840, general criteria for artificial and natural lighting;; Knowledge about light transmission and reflection factors;; Knowledge about UNI EN 15193, energy performance of buildings - energy demand for lighting;; Ability to calculate reduction and window factor;; Ability to apply the assessment method for the calculation of the indicator related to the natural lighting. Evaluate the global acoustics class of the building •General knowledge concerning acoustic class of the building;; Knowledge about UNI EN 12354, acoustic performance assessment of buildings;; Knowledge about UNI/TR 11175, guide to building acoustics regulations;; Knowledge about UNI 11367, acoustic classification of building units;; Ability to apply the assessment method for the calculation of the indicator related to the global acoustics class. Evaluate magnetic and electric field in the building •General knowledge concerning magnetic and electric field sources in the building;; Ability to apply the assessment method for the calculation of the indicator related to the magnetic and electric fields.
Units of Learning Outcome 8 (ULO)	ENVIRONMENTAL (OUTDOOR) QUALITY
Knowledge & skills	Evaluate the heat island effect •General knowledge related to the causes that generate the heat island effect;; Ability to perform shading analysis in an urban area;; Ability to identify the solar reflection indices of different materials useful for calculating the heat effect island;; Ability to apply the assessment method for the calculation of the indicator related to the heat effect island.
Units of Learning Outcome 9 (ULO)	DOMOTIC SYSTEMS (home) (EM2) – PROF/TRAC
Knowledge & skills	Determine the number of domotic functions existing in buildings •General knowledge concerning domotic function;; Knowledge about CEI 64-8 part 3, residential units – plant performance;; Ability to apply the assessment method for the calculation of the indicator related to the domotic systems.
Units of Learning Outcome 10 (ULO)	INTEGRATED DESIGN (IS6) – PROF/TRAC
Knowledge & skills	Understand the importance of the integrated design •General knowledge concerning guaranteed benefits by applying the integrated design approach;; Ability to interact with area experts to collect the data for the calculation of ITACA indicator. Understanding and application of the SBTool methodology •Knowledge about the SBTool methodology; ; Understanding of the methodology awarding of the final score through three main steps: characterization, normalization and aggregation;; Ability to apply the SBTool methodology. Understanding of the Protocollo ITACA approach •Understanding of the contexts and specifications applicability of the Protocollo ITACA;; Understanding of modular and hierarchical system organized in assessment areas, categories and criteria;; Understanding of the multicriteria analysis system; ; Calculation of the performance score through the SBMethod.

ITALY - code:		102
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	LEED Green Associate Agent	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Leadership in Energy and Environmental Design (LEED®) is an international standard and evaluation system developed by the "U.S. Green Building Council" in the late 90s in the US to promote the development of buildings based on sustainable and high-efficiency criteria.; LEED® is characterized by providing an evaluation of the sustainability of the building assessing its impact in 5 main areas: sustainable location, protection and water efficiency, energy efficiency and renewable energy, conservation of materials and natural resources and quality of the indoor environment.; Projects are scored against a set of standard credits and the sum of the points earned determines the level of certification: Certified, Silver, Gold, Platinum.; LEED certifiers do not exist, the only one that certifies is the USGBC through LEED-ONLINE.; There are different LEED credentials that are obtained from specific training. This training assesses the ability of professionals to understand the LEED rating system and to facilitate the certification process. There are two levels of credentials.; • LEED Green associate: • LEED AP with specialty.	
TARGET GROUPS ADDRESSED*	Industry professionals seeking to increase their knowledge of sustainable construction strategies, benefits, and resources of the LEED-NC® Rating System for New Construction: • Architects; • Engineers; • Designers; • Promoters; • Consultants; • Contractors; • Owners; • Manufacturers.	
DIDACTIC METHOD (classes, workshops, internships)	LEED certifiers do not exist, the only one that certifies is the USGBC through LEED-ONLINE. There are different LEED credentials that are obtained from specific training. This training assesses the ability of professionals to understand the LEED rating system and to facilitate the certification process. The system establishes two levels of credentials.; • LEED Green associate	
DURATION OF COURSE	1. LEED GREEN ASSOCIATE	30-60 hours (depending on the offer)
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Prerequisites/eligibility requirements LEED Green associate: None	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	Credential maintenance, (CE hours): LEED Green associate: 15 hours of continuous training within two years after obtaining the credential.	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	List of GNC Home accredited in the Italy http://2016.gbcsitalia.org/page/show/elenco-professionisti-accreditati-gbc-home?locale=it	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.gbcsitalia.org/ https://www.aicarformazione.org/Scuola/Scuola_Moduli.aspx?id=273	
SPONSORING INSTITUTION (keep track of the source of information)	- Green Building Council Italia - Piazza Manifattura, 1 - Rovereto (TN) 38068 Italia; AICARR Formazione Srl Via Melchiorre Gioia 168 Milano (MI)	

Units of Learning Outcome 1 (ULO) (EM2, EPO, ER7, IS6, IS7, IS9) – PROF/TRAC	1. LEED Green Associate: LEED Green Associate exam: The LEED Green Associate Exam, a 100 multiple-choice questions, is designed to test the general knowledge of green building practices and how to support other professionals working on LEED projects.; The primary sources for the development of the LEED professional exams are the LEED rating systems; Knowledge Domains; LEED Process (16 questions); Integrative Strategies (8 questions); Location and Transportation (7 questions); Sustainable Sites (7 questions); Water Efficiency (9 questions); Energy and Atmosphere (10 questions); Materials and Resources (9 questions); Indoor Environmental Quality (8 questions); Project Surroundings and Public Outreach.
Knowledge & skills	- Knowledge Domains reflect the rating systems' credit categories and what one needs to know. These include concepts such as LEED Process, Integrative Strategies, LEED credit categories, and Project Surroundings and Public Outreach.

ITALY - code:		103
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	LEED Accredited Professional (AP) Agent	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Leadership in Energy and Environmental Design (LEED®) is an international standard and evaluation system developed by the "U.S. Green Building Council" in the late 90s in the US to promote the development of buildings based on sustainable and high-efficiency criteria.; LEED® is characterized by providing an evaluation of the sustainability of the building assessing its impact in 5 main areas: sustainable location, protection and water efficiency, energy efficiency and renewable energy, conservation of materials and natural resources and quality of the indoor environment.; Projects are scored against a set of standard credits and the sum of the points earned determines the level of certification: Certified, Silver, Gold, Platinum.; LEED certifiers do not exist, the only one that certifies is the USGBC through LEED-ONLINE.; There are different LEED credentials that are obtained from specific training. This training assesses the ability of professionals to understand the LEED rating system and to facilitate the certification process. There are two levels of credentials.; • LEED Green associate: • LEED AP with specialty.	
TARGET GROUPS ADDRESSED*	Industry professionals seeking to increase their knowledge of sustainable construction strategies, benefits, and resources of the LEED-NC® Rating System for New Construction: • Architects; • Engineers; • Designers; • Promoters; • Consultants; • Contractors; • Owners; • Manufacturers.	
DIDACTIC METHOD (classes, workshops, internships)	LEED certifiers do not exist, the only one that certifies is the USGBC through LEED-ONLINE. There are different LEED credentials that are obtained from specific training. This training assesses the ability of professionals to understand the LEED rating system and to facilitate the certification process. The system establishes two levels of credentials.; • LEED Green associate • LEED AP with specialty Courses: 1. LEEDv4 GREEN ASSOCIATE; 2. LEEDv4 AP WITH SPECIALITY EXAMS; 2.1 LEED AP BD +C; 2.2 LEED AP O +M; 2.3 LEED AP ID + C; 2.4 LEED AP HOMES ; 2.5 LEED AP ND	
DURATION OF COURSE	1. LEED GREEN ASSOCIATE 30-60 hours (depending on the offer); 2. LEED AP WITH SPECIALITY EXAMS; 2.1 LEED AP BD +C 60 hours; 2.2 LEED AP O +M 60 hours ; 2.3 LEED AP ID + C 60 hours ; 2.4 LEED AP HOMES 60 hours ; 2.5 LEED AP ND 60 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Prerequisites/eligibility requirements LEED Green associate: None; Prerequisites/eligibility requirements LEED AP with specialty: Must hold a current LEED Green Associate credential and be 18 years of age or older. Experience working on LEED-registered projects is strongly recommended.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	Credential maintenance, (CE hours): LEED Green associate: 15 hours of continuous training within two years after obtaining the credential. LEED AP with specialty: 30 hours of continuous training within two years after obtaining the credential. (see CMP i Education @ USGBC Guide);	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	List of GNC Home accredited in the Italy http://2016.gbciitalia.org/page/show/elenco-professionisti-accreditati-gbc-home?locale=it	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.gbciitalia.org/ https://www.aicarrformazione.org/Scuola/Scuola_Moduli.aspx?id=273	
SPONSORING INSTITUTION (keep track of the source of information)	- Green Building Council Italia - Piazza Manifattura, 1 - Rovereto (TN) 38068 Italia; AiCARR Formazione Srl Via Melchiorre Gioia 168 Milano (MI)	

Units of Learning Outcome 1 (ULO) (EM2, EPO, ER7, IS6, IS7, IS9) – PROF/TRAC	1. LEED Green Associate: LEED Green Associate exam: The LEED Green Associate Exam, a 100 multiple-choice questions, is designed to test the general knowledge of green building practices and how to support other professionals working on LEED projects.; The primary sources for the development of the LEED professional exams are the LEED rating systems.; Knowledge Domains; LEED Process (16 questions); Integrative Strategies (8 questions); Location and Transportation (7 questions); Sustainable Sites (7 questions); Water Efficiency (9 questions); Energy and Atmosphere (10 questions); Materials and Resources (9 questions); Indoor Environmental Quality (8 questions); Project Surroundings and Public Outreach (11 questions)
Knowledge & skills	· Knowledge Domains reflect the rating systems' credit categories and what one needs to know. These include concepts such as LEED Process, Integrative Strategies, LEED credit categories, and Project Surroundings and Public Outreach.
Units of Learning Outcome 2 (ULO) (EM2, EPO, EP5, EP8, ER1, ER2, ER7, ER10, ER7, IS5, IS6, IS7, IS8, IS9) – PROF/TRAC	1. LEED AP Building Design + Construction (LEED AP BD +C) The exam, Combined exam: 100 multiple-choice questions per section / Specialty only: 100 multiple-choice questions, is based on the following text specifications and references; ; Task Domains; •LEED Project and Team Coordination (22%); •LEED Certification Process (32%); •Analyses Required for LEED Credits (32%); •Advocacy and Education for Adoption for LEED Rating System (14%); Knowledge Domains, (see LEED Green Associate exam domains)
Knowledge & skills	· The LEED AP BD+C credential suits professionals with expertise in the design and construction phases of green buildings, serving the commercial, residential, education and healthcare sectors.
Units of Learning Outcome 3 (ULO) (EM2, EPO, EP5, EP8, ER1, ER2, ER7, ER10, ER7, IS5, IS6, IS7, IS8, IS9) – PROF/TRAC	2. LEED AP Operations + Maintenance (LEED AP O +M) The combined exam, a 100 multiple-choice questions per section / Specialty 100 multiple-choice questions, is based on the following text specifications and references; Task Domains; •LEED Project and Team Coordination (24%); •LEED Certification Process (28%); •Analyses Required for LEED Credits (37%); •Advocacy and Education for Adoption for LEED Rating System (11%); Knowledge Domains, (see LEED AP ID + C)
Knowledge & skills	· The LEED AP O+M credential distinguishes professionals implementing sustainable practices, improving performance, heightening efficiency and reducing environmental impact in existing buildings through enhanced operations and maintenance
Units of Learning Outcome 4 (ULO) (EM2, EPO, EP5, EP8, ER1, ER2, ER7, ER10, ER7, IS5, IS6, IS7, IS8, IS9) – PROF/TRAC	3. LEED AP Interior Design + Construction (LEED AP ID + C); The exam, a 100 multiple-choice questions per section / Specialty 100 multiple-choice questions, is based on the following text specifications and references. Task Domains; •LEED Project and Team Coordination (25%); •LEED Certification Process (25%); •Analyses Required for LEED Credits (35%); •Advocacy and Education for Adoption for LEED Rating System (15%); Knowledge Domains; •LEED Process (11 questions); •Integrative Strategies (8 questions); •Location and Transportation (8 questions); •Water Efficiency (10 questions); •Energy and Atmosphere (15 questions);
Knowledge & skills	· The LEED AP ID+C credential serves participants in the design, construction and improvement of commercial interiors and tenant spaces that offer a healthy, sustainable and productive work environment.
Units of Learning Outcome 5 (ULO) (EM2, EPO, EP5, EP8, ER1, ER2, ER7, ER10, ER7, IS5, IS6, IS7, IS8, IS9) – PROF/TRAC	4. LEED AP HOMES; The exam, a 100 multiple-choice questions per section / Specialty 100 multiple-choice questions, is based on the following text specifications and references.; View references; •Green Building Incentive Strategies; •Guide to LEED Certification: Commercial; •Foundations of LEED; •LEED v4 for HOMES Design and Construction Checklist; •LEED Addenda (Corrections + Interpretations); •LEED Online: Register a Project; •LEED Certification Fees; •Rating System Selection Guidance; •Addenda Database
Knowledge & skills	· The LEED AP Homes exam tests the knowledge and skills necessary to participate in the design process, support and encourage integrated design and streamline the application and certification process.
Units of Learning Outcome 6 (ULO) (EM2, EPO, EP5, EP8, ER1, ER2, ER7, ER10, ER7, IS5, IS6, IS7, IS8, IS9) – PROF/TRAC	5. LEED AP Neighborhood Development (LEED AP ND); The exam, a 100 multiple-choice questions per section / Specialty 100 multiple-choice questions, is based on the following text specifications and references.; Task Domains; •LEED Project and Team Coordination (30%); •LEED Certification Process (30%); •Analysis Required for LEED Credits (30%); •Advocacy and Education for Adoption for LEED Rating Systems (10%); Knowledge Domains; •LEED Process (13 Questions); •Smart Location & Linkage (21 Questions); •Neighborhood Pattern & Design (23 Questions); •Green Infrastructure & Buildings (21 Questions); •Project Surroundings and Public Outreach (7 Questions)
Knowledge & skills	· The LEED AP ND credential applies to individuals participating in the planning, design and development of walkable, neighborhoods and communities

ITALY - code:		104
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Commissioning agent	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The Commissioning Agent and the Construction Manager generally have different skills. In general, the Construction Manager provides management, technical and administrative expertise during the design and construction phases to ensure that the Customer Agency's goals relating to schedule, budget, scope and quality are met. A Commissioning Agent (CxA) has technical background and in depth expertise with the commissioning process including verification techniques, functional performance testing, system equipment and O&M knowledge.	
TARGET GROUPS ADDRESSED*	Technicians, design office engineers, HVAC companies, contracting authorities	
DIDACTIC METHOD (classes, workshops, internships)	Internship document. Practical development work with the use of measuring equipment. Discovery and practice of the commissioning toolbox	
DURATION OF COURSE	2 days	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	no	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	http://www.aicarrformazione.org/Pages/Formazione/NAMES_Commissioning%20Authority.aspx	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	http://www.aicarrformazione.org/Scuola/Scuola_Moduli.aspx?id=304 ; https://gbcitalia.org/corsi-tecnici	
SPONSORING INSTITUTION (keep track of the source of information)	- Green Building Council Italia - Piazza Manifattura, 1 - Rovereto (TN) 38068 Italia; AiCARR Formazione Srl Via Melchiorre Gioia 168 Milano (MI)	
Units of Learning Outcome 1 (ULO)	Commissioning:	
Knowledge & skills	- Definition of commissioning, history; - The actors, the commissioning agent	
Units of Learning Outcome 2 (ULO)	Commissioning tasks in the design phase::	
Knowledge & skills	- The technical program and the book of specific technical clauses; - design vigilance points	
Units of Learning Outcome 3 (ULO)	Commissioning tasks in the production phase::	
Knowledge & skills	- Self-checking and development in hydraulics, aeraulics, regulation; - sample checks; - The technical file	
Units of Learning Outcome 4 (ULO)	Pre-operation missions	
Knowledge & skills	adjusting settings, handing over to occupants, training technical staff, monitoring indicators	
Units of Learning Outcome 5 (ULO)	Methodological tools for commissioning	
	commissioning plan, table of analysis of design documents, verifications in progress ...	
Units of Learning Outcome 6 (ULO)	Feedback from experiences; ;	
Units of Learning Outcome 7 (ULO)	Practical work:	
	- Hydraulic and aeraulic tuning; - Establishment of a measurement plan and checks on a solar installation; - Practice in computer room of methodological tools	

ITALY - code:		105
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Expert in Energy Management (EGE)	
EQF Level, if any	4	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The EGE is an expert specialized in the organization, realization and analysis of Energy Audits, aimed at energy improvement in terms of efficiency e reduction of consumption, to obtain benefits in economic and environmental terms. The energy management expert (EGE) is a professional figure competent in environmental, economic- financial, technological and business management matters in the energy and environmental fields. He is able to intervene in support of organizations in order to improve the level of energy efficiency and to reduce consumption and gas emissions in order to promote the rational use of energy.	
TARGET GROUPS ADDRESSED*	Design & planning (architects, civil engineers, sustainability consultants etc)	
DIDACTIC METHOD (classes, workshops, internships)	Theoretical classes	
DURATION OF COURSE	40-80 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	experience in the energy sector of buildings	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	yes, 3 years	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	https://www.accredia.it/servizio-accreditato/esperto-in-gestione-dellenergia-ege/	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	Decreto legislativo 4 Luglio 2014 n.102, Decreto interdirettoriale del Ministero dello sviluppo economico e del Ministero dell'ambiente e della tutela del territorio e del mare del 12 maggio 2015, UNI CEI 11339:2009, ISO/IEC 17024	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	http://www.secem.eu/ ; http://www.bricks.enea.it/doc/SQ003%20Auditor%20Energetico.pdf ; https://www.bureauveritas.it/	
SPONSORING INSTITUTION (keep track of the source of information)	SECEM Sistema Europeo per la Certificazione in Energy Management, divisione FIRE. Sede legale e operativa: via Anguillarese, 301, 00123, Roma. C.F.96113080582 / P.IVA 04376621001	
Units of Learning Outcome 1 (ULO)	General knowledge	
Knowledge & skills	Photovoltaic, Geothermal, Solar thermal, Solar thermodynamic; Knowledge of the environmental implications of energy uses, of national and international policies and of the implementation mechanisms; Knowledge of the electricity and gas market, the actors involved, the type of supply offers, the forms of contracts, current tariffs and prices, and the operation of the electricity and gas exchange; Knowledge of the methodologies of economic evaluation of projects; Knowledge of contractual arrangements for the purchase of equipment and systems; Knowledge of the basics of business organization; Knowledge of legislation and technical regulations in the areas of energy, the environment and safety; Energy management systems.	
Units of Learning Outcome 2 (ULO)	Civil Sector	
Knowledge & skills	Project management, planning and construction management; Construction market and elements of the construction process; Rational use of energy in buildings; Efficient systems; Regulations and procedures for tenders and tenders; Systems for monitoring, control and regulation of energy variables and microclimate in buildings; Energy management services; Mobility management.	
Units of Learning Outcome 3 (ULO)	Industrial sector	
Knowledge & skills	Reference legislation on energy-environmental issues; Energy rationalization interventions in industrial settlements and interventions to improve the energy efficiency of processes applicable to all sectors; Innovative processes and knowledge of the main BAT (Best Available Technologies) that can be used in the industrial system; Project management, planning and construction management; Energy management services; Mobility management.	

ITALY - code:		106
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Energy auditor	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The Energy Auditor is specialised in the planning and implementation of energy audits (increase the efficiency, reduction of costs, monetary and environmental benefits).	
TARGET GROUPS ADDRESSED*	Design & planning (architects, civil engineers, sustainability consultants etc)	
DIDACTIC METHOD (classes, workshops, internships)	Theoretical classes	
DURATION OF COURSE	40 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	High school diploma in technical field	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	Yes, after years	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	Directive 2012/27/CE UNI CEI/TR 11428:2011 UNI CEI EN 16247-1,2,3,4,5 UNI CEI EN ISO 50001	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	http://www.secem.eu/ ; http://www.bricks.enea.it/doc/SQ003%20Auditor%20Energetico.pdf ; https://www.bureauveritas.it/	
SPONSORING INSTITUTION (keep track of the source of information)	SECEM Sistema Europeo per la Certificazione in Energy Management, divisione FIRE. Sede legale e operativa: via Anguillarese, 301, 00123, Roma. C.F.96113080582 / P.IVA 04376621001	

Units of Learning Outcome 1 (ULO)	Skills and role of Energy Auditor. Diagnosis process
Knowledge & skills	- Regulatory framework, objectives and tools of the Energy Audit / Diagnosis. - Energy auditor requirements according to UNI CEI EN 16247-5. - Description of the Energy Diagnosis Procedures on the basis of the UNI / TR 11428 Technical Report. - The Energy Diagnosis process according to UNI CEI EN 16247-1 (general requirements), UNI CEI EN 16247-2 (Buildings).

Units of Learning Outcome 2 (ULO)	Regulatory references, scenarios and actors
Knowledge & skills	- Knowledge on energy saving and environmental protection scenarios and actors. - Knowledge on the reference regulatory framework. Directive 2012/27 / CE. - Energy management, Energy diagnosis and general requirements of the energy diagnosis service (UNI CEI / TR 11428:2011) - REDE / EGE certification, tasks and areas of action (Esco, Public administrations, etc.)

Units of Learning Outcome 3 (ULO)	Economic and financial analysis
Knowledge & skills	- Sources and financing instruments. - Energy performance contract (EPC). - Economic and financial analysis of energy saving measures: foundations and application to significant cases.

Units of Learning Outcome 4 (ULO)	The energy market
Knowledge & skills	Energy management systems: the UNI CEI EN ISO 50001 standard and applications

Units of Learning Outcome 5 (ULO)	Energy management systems
Knowledge & skills	Energy management systems: the UNI CEI EN ISO 50001 standard and applications

Units of Learning Outcome 6 (ULO)	Energy diagnosis
Knowledge & skills	- Practical cases and examples: analysis of a calculation report (as required by the reference legislation); building closure technical data sheets; consistency of input data; typical errors of the input data; analysis of the output data. - Simulation of an energy diagnosis. - Illustration of case studies and examples of energy efficiency.

Units of Learning Outcome 7 (ULO)	Critical analysis of case studies and simulation
Knowledge & skills	- Practical cases and examples: analysis of a calculation report (as required by the reference legislation); building closure technical data sheets; consistency of input data; typical errors of the input data; analysis of the output data. - Simulation of an energy diagnosis. - Illustration of case studies and examples of energy efficiency. - Simulation of an energy diagnosis. - Illustration of case studies and examples of energy efficiency.

ITALY - code:		107
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Environmental impact assessment expert (VIA)	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The Expert in Environmental Impact Assessment (EIA) is the person who is responsible for identifying, describing and evaluating the impact and environmental sustainability of projects that are subject to EIA. In the evaluation he plays a role of responsibility because he must formulate a technical judgment in evaluating the impact and environmental sustainability of the project. The Environmental Impact Assessment Expert carries out the environmental impact study (SIA) or, in the case of working for commissions or supervisory institutions, check the environmental impact study presented.	
TARGET GROUPS ADDRESSED*	Design & planning (architects, civil engineers, sustainability consultants etc)	
DIDACTIC METHOD (classes, workshops, internships)	Theoretical classes	
DURATION OF COURSE	16 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	It is necessary to have a considerable amount of knowledge to carry out the profession of expert in environmental impact assessment. A high school diploma may be enough to start a good educational path, but it is certainly easier for those who have a scientific degree, well oriented to this type of activity, such as, for example, Engineering, Agriculture, Geology, Chemistry, Biology.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	https://www.almalaboris.com/ ; https://www.lavoroeformazione.it/	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.almalaboris.com/ ; https://www.lavoroeformazione.it/	
SPONSORING INSTITUTION (keep track of the source of information)	Almalaboris - Piazza delle Cinque Scale n. 23 - 00186 Roma Tel.: (+39) 06 33 48 33 11 - Fax: (+39) 06 97 85 87 11 - Email: info@almalaboris.com	
Units of Learning Outcome 1 (ULO)	Regulatory framework and procedural process	
Knowledge & skills	Regulatory framework and purpose; Fields of application; Actors involved; Procedural process; Innovative elements introduced with the SEA.	
Units of Learning Outcome 2 (ULO)	Verification of eligibility and scoping	
Knowledge & skills	Procedural aspects of the eligibility check; The contents of the Preliminary Document; The Scoping phase and the contents of the Preliminary Report.	
Units of Learning Outcome 3 (ULO)	Environmental Report, Evaluation and Monitoring	
Knowledge & skills	Transmission and evaluation of the Environmental Report, Monitoring; procedural aspects; The contents of the Environmental Report; Evaluation of the Environmental Report; Monitoring.	
Units of Learning Outcome 4 (ULO)	The integration of the Environmental Impact Assessment (VincA) into the SEA and notes on the Environmental	
Knowledge & skills	Environmental Impact Assessment: definitions and regulatory references; Contents and methods of drafting the Environmental Impact Study; The integration of the VincA into the SEA: methodological aspects; Notes on the Environmental Impact Assessment (EIA): similarities and differences with the SEA.	

ITALY - code:		108
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Building energy assessor	
EQF Level , if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The building energy certifier is a competent energy efficiency technician, responsible for certifying the performance of buildings in this regard. An expert in the assessment of energy needs and knowledge of energy indices. The energy certifier is a technician who works both as an employee of public bodies, or private companies, but also as a freelancer. His activity and his professional figure are recognized in a special register.	
TARGET GROUPS ADDRESSED*	Design & planning (architects, civil engineers, sustainability consultants etc)	
DIDACTIC METHOD (classes, workshops, internships)	Theoretical classes	
DURATION OF COURSE	80 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	High school diploma in technical field	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	yes	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	yes, regional (example: https://sace.regione.emilia-romagna.it/ElencoSoggettiCertificatori.aspx)	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	DLgs 192/2005, DPR 16 aprile 2013, n. 75	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.edili.com/	
SPONSORING INSTITUTION (keep track of the source of information)	Istituto Professionale Edile Bologna, Via del Gomito, 7, 40127 Bologna BO	

Units of Learning Outcome 1 (ULO)	Regulatory framework
Knowledge & skills	The legislation for the energy efficiency of buildings. The certification procedures. The technical legislation. Obligations and responsibilities of the certifier.

Units of Learning Outcome 2 (ULO)	Fundamentals of energetics
Knowledge & skills	The energy balance of the building system. The calculation of the energy performance of buildings. Sensitivity analysis for the main variables that influence its determination.

Units of Learning Outcome 3 (ULO)	Economic analysis
Knowledge & skills	Economic technical analysis of investments. Practical exercises with particular attention to existing buildings.

Units of Learning Outcome 4 (ULO)	Building envelope
Knowledge & skills	The types and energy performance of the components; design and construction solutions for the optimization; of new buildings; improvement of existing buildings.

Units of Learning Outcome 5 (ULO)	Thermal plants
Knowledge & skills	Fundamentals and energy performance of technologies traditional and innovative; design and construction solutions for the optimization: of new plants; the restructuring of existing plants.

Units of Learning Outcome 6 (ULO)	The use and integration of renewable sources
Knowledge & skills	Types and characteristics of plants for the production and use of energy from renewable energy sources (biomass, geothermal, solar thermal, solar photovoltaic, wind, etc.) - Determination of the energy performance of plants for the production of energy from RES - Types and characteristics of other types of energy production and use plants (cogeneration, district heating, etc.)

Units of Learning Outcome 7 (ULO)	Thermal environmental comfort
Knowledge & skills	Natural and mechanical controlled ventilation. Technological innovation for building and plant management.

Units of Learning Outcome 8 (ULO)	Energy diagnosis of buildings
Knowledge & skills	Application examples. Exercises in the use of IT tools referred to by national legislation

ITALY - code: 	109
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	CasaClima Agent
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The CasaClima Consultant is a professional figure who has the knowledge to answer all questions regarding new buildings and energy restoration. The CasaClima Energy Consultant is a professional figure who carries out consultancy activities in the construction of CasaClima buildings, autonomously and independently. It supports the private individual, the designer and the builder in the design choices, concerning both new buildings and renovation. The CasaClima Consultant follows the entire certification process, from the design to the construction of the CasaClima. The first step of the CasaClima Energy Certifier is to view the project and carry out an initial energy assessment, which consists of an initial calculation of the needs necessary for heating. The intent is to identify for each construction element the transmittance value necessary to reach a specific objective requirement. The next step is to define in more detail the stratigraphy of the vertical and horizontal structures that make up the envelope and the characteristics required for the window frames. Once the envelope has been optimized, the consulting activity moves to the definition of the systems with the aim of installing high-performance systems that possibly exploit renewable energy sources. The work of the CasaClima Consultant then continues on site: the CasaClima Consultant defines the most critical phases with the company, such as the definition of nodes and the resolution of thermal bridges.
TARGET GROUPS ADDRESSED*	architects, engineers, surveyors, thermotechnics
DIDACTIC METHOD (classes, workshops, internships)	The process of training to become energy consultant ClimateHouse, only by those with a degree in technical field, has three levels which are divided into 16 hours of basic course, 40-hour advanced course and 120 hours of study consultant. At the end of the course there will be a written and oral exam to verify the candidates' preparation. Upon successful completion of the exam, the qualification of CasaClima Energy Consultant is awarded. This allows you to be registered in the list published on the Agency's website, to be able to use the CasaClima Consultant logo and receive the identification card.
DURATION OF COURSE	120 hours + final exam
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	attendance of BASIC and ADVANCED CasaClima courses for designers
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	1 year
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	https://www.agenziacasaclima.it/it/rete-casaclima/consulenti-casaclima-1371.html
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	https://www.agenziacasaclima.it/it/direttiva-tecnica-nuovi-edifici-settembre-2017--10-1205.html
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.agenziacasaclima.it/it/formazione-73.html
SPONSORING INSTITUTION (keep track of the source of information)	Agenzia per l'Energia Alto Adige – CasaClima, Via A. Volta 13°, 39100 Bolzano - Alto Adige, Italia

Units of Learning Outcome 1 (ULO)	LEGISLATION, REGULATION AND FUNDING - APPLIED TECHNICAL PHYSICS (ER1, ER2, ER4, ER6, IS1, IS3) – PROF/TRAC
Knowledge & skills	Legislation, European and national legislation, Forms of financing, CasaClima Technical Directive, Winter Thermal Design: Thermal Transmittance and Thermal Bridges, Summer Thermal Design: Periodic Thermal Transmittance, Shading, Ventilation, Thermo-hygrometry

Units of Learning Outcome 2 (ULO)	BUILDING ENERGY - ENCLOSURE - INSTALLATIONS, ENVIRONMENTAL SUSTAINABILITY, COST / BENEFIT ASSESSMENT (ER5, ER7, ER8, ER10, IS5, IS6, IS7, IS8, IS9) – PROF/TRAC
Knowledge & skills	Winter / summer thermal loads, DHW, solar thermal / photovoltaic, heating, cooling, lighting, electrical auxiliaries, CO2, Balance of winter / summer thermal loads, Introduction to environmental certification systems in buildings, CasaClima Nature environmental certification, Protocols of sustainability CasaClima, Legislation the EU regulation 244/2012, UNI EN 15459 - Global Cost Calculation

Units of Learning Outcome 3 (ULO)	LIGHTING: NATURAL / ARTIFICIAL LIGHT
Knowledge & skills	PROJECT OF NATURAL LIGHT, Comfort and energy efficiency, Factors for the quality / availability of natural light, Preliminary design (quantity and quality available), The reference legislation, Glare: control, solutions, Light regulation, , ARTIFICIAL LIGHT PROJECT, Principles of artificial lighting, Comfort and energy efficiency, Natural light / artificial light integration, Lighting systems, Profitability

Units of Learning Outcome 4 (ULO)	ACOUSTICS
Knowledge & skills	PROJECT OF THE SOUND INSULATION, Acoustics in low energy consumption buildings, Legislation, passive acoustic requirements: design, execution, testing, PROJECT OF THE SOUND ABSORPTION, Architectural acoustics and general principles, Reflection and absorption factors, Behaviour of materials and solutions, Variable geometries in large rooms

Units of Learning Outcome 5 (ULO)	PLANT - SOLAR AND STORAGE SYSTEMS (EPO, EP6) – PROF/TRAC
Knowledge & skills	Definition of monthly and seasonal loads, Power and Energy (heating, cooling, DHW), Heating: production, emission, regulation, distribution, storage, DHW: supply, distribution, storage, production, cooling, , Solar thermal and photovoltaic, VMC systems, Rainwater recovery, Photovoltaic modules, Photovoltaic inverters, Incentives and concessions

ITALY - code:		I10
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Comuneclima Consultant	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Consulente Comuneclima is a professional able to support municipalities and the energy team in the implementation of activities under the ComuneClima programme and in the certification process. The programme foresees the obligation for participating municipalities to take advantage of exclusively consultants accredited by the Alto Adige Energy Agency – CasaClima.	
TARGET GROUPS ADDRESSED*	Designers (architects and engineers) and all the technicians with proven experience in municipalities consulting on energy efficiency themes, renewable energy and sustainable mobility.	
DIDACTIC METHOD (classes, workshops, internships)	Theoretical lessons.;Course Breakdown:;COMUNECLIMA PROGRAMME;objectives and opportunity;tools and instruments;REFERENCE FRAMEWORK FOR ENERGY POLICIES AND CLIMATE PROTECTION ;community climate policy ;national energy strategy;national Renewable Energy Action Plan;EUROPEAN ENERGY AWARD;strategy, energy planning, energy management;European Energy Award: general description;Covenant of Mayors and European Energy Award;guidelines for consultants;CATALOGUE OF MEASURES (eea Management tool);structure and usage;evaluation areas and evaluation method;examples/application;ENERGY ACCOUNTING SOFTWARE -ENERGY REPORT ONLINE;purpose, functionality, usage ;final energy report;FINANCING AND INCENTIVES FOR MUNICIPALITIES;Funding opportunities/incentives at national and community level;TECHNICAL AND ECONOMIC FEASIBILITY STUDIES;BEST PRACTICES ;Climate protection: the example of Bolzano city	
DURATION OF COURSE	24 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	The course is reserved to those who meet the following requirements:;hold the title of Consulente energetico CasaClima;;have experience in municipality consulting in the fields of energy efficiency, renewable energy, sustainable mobility and participatory approach;;have relationships with public administration to whom propose the adhesion to the strategy.;These requirements have to be proved through the personal CV and with a list of municipalities in contact with and explaining the contact person of each institution.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	CasaClima; www.agenziacasaclima.it	
SPONSORING INSTITUTION (keep track of the source of information)	https://www.agenziacasaclima.it/it/consulente-comuneclima-bolzano-6-1043.html	

Units of Learning Outcome 1 (ULO)	Support municipalities and energy team in the implementation of activities and in the certification process under
Knowledge & skills	Knowledge concerning energy policies and climate protection at national level;;Knowledge about European Energy Award and Covenant of Mayors;;Useful guidelines for consultants related to strategy, energy planning and energy management in municipalities;;Usage of eea Management tool;;Realisation of the final energy report using an energy accounting software;;Knowledge about opportunities/incentives at national level;;Ability to carry out technical and economic feasibility studies.

ITALY - code:		111
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Monitoring energy consumption expert	
EQF Level, if any	5	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The Energy Consumption Monitoring Technician configures and manages energy performance monitoring systems, proposing efficiency programs, verification and corrective methods to improve energy consumption. The Energy Consumption Monitoring Technician, also called Energy Management Expert Technician, configures and manages energy performance monitoring systems, proposing efficiency programs, verification and corrective procedures aimed at improving energy consumption.	
TARGET GROUPS ADDRESSED*	Technicians, design office engineers, HVAC companies, contracting authorities	
DIDACTIC METHOD (classes, workshops, internships)	Theoretical classes + stage	
DURATION OF COURSE	500 hours (200 hours in internships)	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Diploma of technical and professional education, high school diploma (EQF 4), certificate of professional technical specialization. Substantive requirements - skills and knowledge relating to the professional area "Energy development and management" acquired in previous study / training courses: business organization processes, roles and functions of the main renewable and non-renewable energy sources, interactions between energy consumption and impact on environment, basic notions related to the concept of energy efficiency and energy saving.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	regional, DGR 739/2013	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://orienter.regione.emilia-romagna.it/qualifica/dettaglio/353 , https://www.idemilioromagna.it/corso/tecnico-esperto-in-energy-management/#	
SPONSORING INSTITUTION (keep track of the source of information)	Innovazione Apprendimento Lavoro S.r.l. - Impresa Sociale - Sede Legale Via Bigari, 3 40128 Bologna, IT	

Units of Learning Outcome 1 (ULO)	Energy monitoring system conformation
Knowledge & skills	Adopt performance indicators and process parameters useful for the definition; Apply techniques for the installation of measurement / control devices or for the adjustment of pre-existing components; Understanding and interpreting the energy profile of the organization; Recognize the users and processes with energy consumption, identifying and classifying them by relevance

Units of Learning Outcome 2 (ULO)	Energy performance monitoring development
Knowledge & skills	Apply universally identifiable methods of coding and archiving the measured and collected data; Apply techniques for the installation of measurement / control devices or for the adjustment of pre-existing components; Determine the technological and instrumental equipment and techniques for collecting information; Evaluate the interactions between different energy efficiency interventions in terms of overall energy performance

Units of Learning Outcome 3 (ULO)	Control and definition of corrective improvements
Knowledge & skills	Adopt computerized data processing techniques with dedicated software; Comparatively analyze the historical data series with reference to the identified future consumption targets; Analyze active and passive energy consumption, checking the linearity of the energy efficiency process; Identify the process and consumption anomalies of the plants suggesting corrective solutions

Units of Learning Outcome 4 (ULO)	Return and interpretation of monitoring results
Knowledge & skills	Apply cost-benefit analysis procedures for an assessment of possible efficiency measures from an economic- financial point of view; Perform an analytical reading of the data by returning and decoding the results of the processing; Translate the criticalities / non-conformities found in proposals for actions and behaviors aimed at improving processes and the use of technologies; Evaluate the progress achieved with respect to the predefined energy objectives, proposing any corrective measures

ITALY - code: 	112
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Energy solutions system building plant expert
EQF Level, if any	6
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The technician in building system energy solutions is able to examine the energy and environmental characteristics of a building system in order to define its current level of performance and to identify possible improvement interventions, evaluating their technical and economic feasibility.
TARGET GROUPS ADDRESSED*	Technicians, design office engineers, HVAC companies, contracting authorities
DIDACTIC METHOD (classes, workshops, internships)	Theoretical classes + stage
DURATION OF COURSE	2000 hours (800 hours in internships)
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	People with upper secondary education. The recipients must also have the following requisites: skills in the use of the English language and computer science of an adequate level to allow a fruitful participation in training activities; basic skills in mathematics and physics
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	Rif. PA 2018-9534/RER Approvato con Deliberazione di Giunta Regionale n. 756 del 21/05/2018
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://orienter.regione.emilia-romagna.it/qualifica/dettaglio/297
SPONSORING INSTITUTION (keep track of the source of information)	ITS TEC - Sede Ravenna, c/o Istituto Tecnico Industriale Statale Nullo Baldini, Via G. Marconi, 2 – 48124 Ravenna

Units of Learning Outcome 1 (ULO)	Representation of the energy situation of the building system
Knowledge & skills	Adopt the most suitable techniques and instruments to perform measurements and assessments on the technological characteristics of the building system; Understand the available technical documentation and data relating to consumption and supply contracts in order to determine the overall energy requirement of the building system; Identify the most effective ways to process the data collected and represent the results of the analyzes carried out; Recognize the technological and environmental components, typical of the building envelope and pre-existing systems, which have an impact on the performance and performance of the building system

Units of Learning Outcome 2 (ULO)	Conformation of interventions to improve energy performance
Knowledge & skills	Adopt the IT tools and techniques necessary to simulate the amount of savings in relation to the planned interventions and to provide an assessment of investment prospects and payback times; Foreshadowing the possible intervention scenarios by evaluating the aspects of technical and economic feasibility and feasibility; Recognize the critical areas and the weak points of the plant building system on which it is possible to intervene and envisage opportunities for improvement; Evaluate, for each of the planned interventions, the amount of economic and energy savings in order to guide the choices towards the most convenient and functional intervention to the needs expressed by the client

Units of Learning Outcome 3 (ULO)	Configuration of technical solutions for energy performance improvement
Knowledge & skills	Understand the essential elements of the energy improvement interventions to be implemented: type of intervention, characteristics, purpose, behavior over time and maintenance / management Identify the main energy technologies / systems currently available on the renewable and similar energy market, with particular regard to the innovative solutions promoted by current legislation; Foreshadowing the most suitable energy systems for the interventions to be carried out, evaluating the functional and applicative characteristics of the various technologies available; Evaluate the various opportunities for modification / integration of the envelope technologies and pre-existing plant components

Units of Learning Outcome 4 (ULO)	Formulation of an energy performance improvement plan
Knowledge & skills	Define a cost estimate taking into account the technologies, systems, equipment required for energy improvement interventions; Identify the optimal combination of resources, tools, times and methods and define a hypothesis of an energy performance improvement plan in its essential aspects that takes into account the maintenance and management of interventions; Identify all possible sources of financing and incentive systems currently in place; Evaluate the functionality of the plan by foreshadowing possible improvements, modifications or adaptations also according to the objectives set

ITALY - code: 	I13
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Expert in Minimum Environmental Criteria
EQF Level , if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Expert in Minimum Environmental Criteria is a professional who knows the genesis of the Minimum Environmental Criteria and is able to relate the GPP Green Public Procurement and Minimum Environmental Criteria. He knows the Minimum Environmental Criteria to be applied in construction field, recognises the different European labels product, has mastery of the concept of Life Cycle Assessment and of the Environmental Product Declaration. The professional is able to apply ANAC guidelines for the application of the Minimum Environmental Criteria. The Expert in Minimum Environmental Criteria understands the relationship between sustainability environmental certification and the Minimum Environmental Criteria.
TARGET GROUPS ADDRESSED*	Designers (architects and engineers)
DIDACTIC METHOD (classes, workshops, internships)	The course addresses the issues arising from the obligation to include Minimum Environmental Criteria in technical specifications and in tender documents within the broader framework of the European and national regulatory framework; The regulatory references contained in the new environmental provisions will be defined in the public Procurement Code.; Online theoretical lessons (8hours); Training contents:;- Green Public Procurement and Minimum Environmental Criteria in legislation;;- Environmental provisions contained in public procurement;;- The structure of the Minimum Environmental Criteria and their application in Buildings;;- Environmental management tools and the application of Minimum Environmental Criteria in Construction.
DURATION OF COURSE	8 hours (theoretical lessons)
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	It is preferable to have a degree in architecture and/or engineering.; General knowledge concerning Minimum Environmental Criteria in Construction.
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	Decree Law 11 October 2017, Annex 2 -; Minimum Environmental Criteria for the award; of design services and works for the new; construction, renovation and maintenance of; public buildings - and subsequent; amendments.
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	http://2016.gbcitalia.org/ ; https://www.gbcitalia.org/web/guest/corso-cam , Q-Aid ASSESSMENT & CERTIFICATION S.r.l. https://www.q-aid.it/
SPONSORING INSTITUTION (keep track of the source of information)	GBC Italia - http://2016.gbcitalia.org/ ; LEED Green Associate; Italian Ministry of Environment; https://www.minambiente.it/pagina/i-criteri-ambientali-minimi

Units of Learning Outcome 1 (ULO)	Technical skills on the application of the Minimum Environmental Criteria in construction as required by the Decree of 11 October 2017 and subsequent amendments
Knowledge & skills	· Understanding of the genesis of the Minimum Environmental Criteria; Knowledge about GPP Green Public Procurement process and Minimum Environmental Criteria; Application of the Minimum Environmental Criteria in construction field, recognising the different European labels product; Knowledge of the Life Cycle Assessment and of the Environmental Product Declaration; Capability to apply ANAC guidelines for the application of the Minimum Environmental Criteria; Understanding of the relationship between sustainability environmental certification and the Minimum Environmental Criteria.

ITALY - code:		114
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Sustainable building Expert	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Sustainable building Expert is an evolution of the traditional figure of the designer in building-plant and infrastructure sector. This Sustainable Building Expert is a professional who has developed the skills to make choices and assessments on morphological characteristics of buildings and infrastructures; he/she has mastery in building materials selection, in energy consumption and environmental resources, in building life cycle, knowledge about environmental impacts in building construction and is able to manage the certification processes of	
TARGET GROUPS ADDRESSED*	The Sustainable Building Expert certification is aimed at all those professionals (engineers, architects, surveyors and experts) who apply, in their work contest, Protocollo ITACA and CasaClima assessment systems.	
DIDACTIC METHOD (classes, workshops, internships)	Participation in a specific training course is not required.;There are three levels of certification. Basic Level certification is aimed at professionals with skills in the design process and environmental energy consultancy in the building sector and related management of certification processes. The Advanced Level is aimed at professional with Protocollo ITACA Inspector qualification or to Senior CasaClima Expert. Finally, professionals with transversal skills and experience in both methods will be able to obtain the Master Level certification.	
DURATION OF COURSE	Rates in force:• application for certification and requirements analysis;• certification exam;• registration in the CERTING register (and after accreditation also in the Accredia register); Free;• annual maintenance, including registration in the CERTING (and subsequently Accredia) registers; Free;	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	For Basic Level:;The professional who applies for Basic Level certification must demonstrate that he/she possesses the expertise (in terms of skills, knowledge and competences) in relation to the planning process phases and environmental energy consultancy in the building and the management of the environmental energy certification processes of buildings according to the CasaClima assessment system and / or Protocollo ITACA.;Requirements:;1) Be in possession of one of the following qualifications:;-diploma from technical institute specializing in Construction, Environment and Territory (former surveyor and former industrial building expert);- degree in architecture or engineering in civil and industrial sectors.;2) Having passed the exam required by the CasaClima Agency and/or by the ITACA consortium to achieve the title of "Junior CasaClima Expert" and/or "Protocollo ITACA Expert".;Professional experience;1)having carried out design activities as a freelancer or employee of a public and / or private company.;2)having carried out activities in the field of sustainable construction for at least 2 years, if graduates, and for at least 5 years if in possession of a high school diploma.;3)having applied one of the ITACA and / or CasaClima assessment systems on a built and certified building, at least once upon presentation of graduation, at least twice upon presentation of high school diploma.;For Advanced Level:;The professional who applies for Advanced Level certification must demonstrate that he/she possesses the expertise (in terms of skills, knowledge and competences) in relation to the on-site inspection phases, to verify that the execution of the works complies with the project presented and the applicable assessment tools.;Requirements:;1) Be in possession of one of the following qualifications:;-diploma from technical institute specializing in Construction, Environment and Territory (former surveyor and former industrial building expert);-degree in architecture or engineering in civil and industrial sectors.;2) Having passed the exam required by the CasaClima Agency and/or by the ITACA consortium to achieve the title of "CasaClima Energy Consultant" and/or "Protocollo ITACA Inspector".;Professional experience;Having applied one of the ITACA and / or CasaClima assessment systems on the building realised and certified. Or, having verified on site the energy solutions adopted for a building certified with the ITACA and / or CasaClima protocol. At least once if you have a degree, at least twice if you have a high school diploma.;For Master:;The professional who applies for Advanced Level certification must demonstrate that he/she possesses the expertise (in terms of skills, knowledge and competences) in relation to the design process phases and environmental energy consultancy in the building sector and also the management of the environmental energy certification processes of buildings according to the CasaClima assessment system and Protocollo ITACA. Furthermore, the professional must demonstrate to possess methodologies and techniques of environmental energy design and consultancy processes, as well as	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	The certificate is valid for 3 years from the date of issue.	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Once passed the exam, professional is added to the following list: https://www.cni-certing.it/elenco-pubblico	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	UNI CEI EN ISO/IEC 17024 : 2012 (competence certification).	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	CERTING; https://certing.it/esperto-in-edilizia-sostenibile-italiana/	
SPONSORING INSTITUTION (keep track of the source of information)	CERTING;ITACA;CasaClima	
Units of Learning Outcome 1 (ULO)	Undertake the activity of Sustainable building Expert	
Knowledge & skills	Knowledge about buildings components and sustainability;;Expertise in morphological characteristics analysis of buildings and infrastructures;;Knowledge about building materials, energy and environmental consumption resources;;Knowledge about building life cycle;;Knowledge about environmental impacts of building construction;;Understand PROTOCOLLO ITACA process, multicriteria analysis system and calculation of the performance score through the SBMethod;;Explain and carry out a PROTOCOLLO ITACA assessment on a building;;Understand CasaClima process;;Explain and carry out a CasaClima assessment on a building.	

ITALY - code:		I15
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	GBC HB AP (Historic Buildings)	
EQF Level , if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	GBC HB AP is a professional who has the knowledge and skills to manage and accompany a GBC Certification process and the ability to connect the typical contents of the disciplines of engineering and architecture with transversal aspects typically found in process management.;The GBC Accredited Professional has knowledge in sustainable construction and expertise in the field of Historical Value, restoration and conservation of cultural heritage.;GBC Home AP is able to apply LEED Italia NC and GBC HOME V2 certification systems.	
TARGET GROUPS ADDRESSED*	Designers (architects and engineers)	
DIDACTIC METHOD (classes, workshops, internships)	The exams are intended to assess candidates' abilities on three cognitive levels: acquisition, application and analysis. ;;Theoretical lessons and final exam.;Course Breakdown;;Theoretical lessons (14 hours);The first part of the course foresees the presentation of the certification system and the scope of the GBC HOME V2 protocol. The program includes the analysis of all the credits of the protocol also providing examples and illustration of the main data collection forms necessary for the certification of the building.;FINAL EXAM 50 questions with multiple choice (1hour)	
DURATION OF COURSE	14 hours (theoretical lessons) + 1 hour (final exam)	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	- Being above the age of consent (18 years);- Accept all the terms of the Accreditation Regulation of GBC HOME;;- Have obtained LEED Green Associate title, or the credentials of LEED AP BD+C, or the credentials of LEED AP Legacy (exam passed before July 2009).	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Yes, once passed the final exam, the professional is added to the GBC Italia register of Professional Accredited http://2016.gbcsitalia.org/page/show/elenco-professionisti-accreditati-gbc-home?locale=it	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	http://2016.gbcsitalia.org/	
SPONSORING INSTITUTION (keep track of the source of information)	GBC Italia - http://2016.gbcsitalia.org/ ; LEED Green Associate	

Units of Learning Outcome 1 (ULO)	Undertake sustainability assessment of a historical building using LEED Italia NC and GBC HOME V2 certification systems
Knowledge & skills	Understand the GBC HOME process;;Assess the applicability of the protocol on the project;;Determine GBC HOME requirements for the project (provide the customer with solutions that are in tune with his needs, identify objectives, costs and the return on investment);;General knowledge about buildings components and sustainability;;Have expertise in the field of Historical Value, restoration and conservation of cultural heritage;;Define roles and responsibilities of the different project team members in relation to the assessment of a certification process;;Explain and carry out a GBC HOME assessment on a building;;Identify and know how to guide the choice of green products;;GBC Home AP is able to apply LEED Italia NC and GBC HOME V2 certification systems.

ITALY - code:		IT6
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	GBC Home AP	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	GBC Home AP is a professional who has the knowledge and skills to manage and accompany a GBC Certification process and the ability to connect the typical contents of the disciplines of engineering and architecture with transversal aspects typically found in process management.;The GBC Accredited Professional has knowledge in sustainable construction.;GBC Home AP is able to apply LEED Italia NC and GBC HOME V2 certification systems.	
TARGET GROUPS ADDRESSED*	Designers (architects and engineers)	
DIDACTIC METHOD (classes, workshops, internships)	The exams are intended to assess candidates' abilities on three cognitive levels: acquisition, application and analysis. ;Theoretical lessons and final exam.;Course Breakdown:;Theoretical lessons (14 hours);The first part of the course foresees the presentation of the certification system and the scope of the GBC HOME V2 protocol. The program includes the analysis of all the credits of the protocol also providing examples and illustration of the main data collection forms necessary for the certification of the building.;FINAL EXAM 100 questions with multiple choice (2 hours).	
DURATION OF COURSE	14 hours (theoretical lessons) + 2 hours (final exam)	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	- Being above the age of consent (18 years);- Accept all the terms of the Accreditation Regulation of GBC HOME;;- Have obtained LEED Green Associate title, or the credentials of LEED AP Legacy (exam passed before July 2009).	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Yes, once passed the final exam, the professional is added to the GBC Italia register of Professional Accredited http://2016.gbcsitalia.org/page/show/elenco-professionisti-accreditati-gbc-home?locale=it	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	http://2016.gbcsitalia.org/	
SPONSORING INSTITUTION (keep track of the source of information)	GBC Italia - http://2016.gbcsitalia.org/ ;LEED Green Associate	

Units of Learning Outcome 1 (ULO)	Undertake sustainability assessment of a building using LEED Italia NC and GBC HOME V2 certification systems
Knowledge & skills	Understand the GBC HOME process;;Assess the applicability of the protocol on the project;;Determine GBC HOME requirements for the project (provide the customer with solutions that are in tune with his needs, identify objectives, costs and the return on investment);;General knowledge about buildings components and sustainability;;Define roles and responsibilities of the different project team members in relation to the assessment of a certification process; ;Explain and carry out a GBC HOME assessment on a building; ;Identify and know how to guide the choice of green products;;GBC Home AP is able to apply LEED Italia NC and GBC HOME V2 certification systems.

ITALY - code:		117
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Building constructor expert	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The building constructor specialized in sustainable construction constructs buildings taking into account the main factors that determine the overall performance of the building system with respect to the consumption and sustainability objectives established in the project. It consistently makes the choice of materials, products and construction elements and identifies the construction methods to reduce consumption and respect the defined energy performance and guarantee the expected sustainability standards. It operates in the private and public market of residential construction and for the tertiary sector, in the construction of buildings low consumption in masonry or wood, new or existing to be redeveloped for energy consumption. It relates to its own workers and collaborating companies with respect to which performs functions of control and coordination of the processing phases to guarantee the energy consumption objectives established by the project, as well as the related regulations in force and the energy and sustainability standards established by the building certification system eventually adopted. It relates with other professional figures responsible for the design, management, other processes, to effectively integrate its work towards the achievement of the energy and sustainability objectives set by the project.	
TARGET GROUPS ADDRESSED*	Craftsman	
DIDACTIC METHOD (classes, workshops, internships)	Participation in a specific training course is not required.	
DURATION OF COURSE		
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	https://www.odatech.it/it/certificazione-delle-competenze/elenco-esperti/	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.odatech.it/it/	
SPONSORING INSTITUTION (keep track of the source of information)	Odatech - Organismo di abilitazione e certificazione - Piazza Manifattura, 1 38068 Rovereto (TN)	

Units of Learning Outcome 1 (ULO)	Specific skills
Knowledge & skills	Read the project, the descriptive data and the energy-environmental sustainability objectives established. Analyze the main factors that determine the overall performance of the building / plant system. Make the choice of materials, products and elements on the basis of technical data sheets and certifications, correctly associating materials, products and construction elements in compliance with the energy performance defined in the project and identifying them in a the characteristics attributable to their environmental energy sustainability are adequate. Identify potential thermal and acoustic bridges, air infiltrations by reading the project drawings. Identify construction solutions in compliance with the energy-environmental sustainability objectives defined by the project. Create new buildings and renovations for the redevelopment of existing buildings, respecting the energy-environmental sustainability objectives established by the project and the current legislation on the subject and recognizing the elements of attention regarding sustainability in the construction phase with particular attention to the sustainable management building site.

ITALY - code:		I18
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Wooden Carpenter expert	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The wood carpenter specialized in sustainable construction creates roofs and buildings in wood, taking into account the main factors that determine the overall performance of the building / plant system with respect to the consumption and sustainability objectives established in the project. It chooses materials, products and construction elements in a manner consistent with regulations and design objectives and identifies construction methods to reduce consumption and guarantee the expected sustainability standards. It operates in the private and public market of residential construction and for the tertiary sector, in the production of wooden roofing and wooden buildings. In carrying out the work, it relates to other professionals responsible for the design, management and other processes, to effectively integrate its work towards the achievement of the energy and sustainability objectives set out in the project.	
TARGET GROUPS ADDRESSED*	Craftsman	
DIDACTIC METHOD (classes, workshops, internships)	Participation in a specific training course is not required.	
DURATION OF COURSE		
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	https://www.odatech.it/it/certificazione-delle-competenze/elenco-esperti/	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.odatech.it/it/	
SPONSORING INSTITUTION (keep track of the source of information)	Odatech - Organismo di abilitazione e certificazione - Piazza Manifattura, 1 38068 Rovereto (TN)	

Units of Learning Outcome 1 (ULO)	Specific skills
Knowledge & skills	Read the project, the descriptive data and the energy-environmental sustainability objectives established. Analyze the main factors that determine the overall performance of the building / plant system. Make the choice of materials, products and elements on the basis of technical data sheets and certifications, correctly associating materials, products and construction elements in compliance with the energy performance defined in the project and identifying them in a the characteristics attributable to their environmental energy sustainability are adequate. Identify potential thermal and acoustic bridges, air infiltrations by reading the project drawings. Identify construction solutions in compliance with the energy-environmental sustainability objectives defined by the project. Create new buildings and renovations for the redevelopment of existing buildings, respecting the energy-environmental sustainability objectives established by the project and the current legislation on the subject and recognizing the elements of attention regarding sustainability in the construction phase with particular attention to the sustainable management building site.

ITALY - code:		119
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Electrician expert	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The electrician specializing in sustainable construction creates energy efficient systems, taking into account the factors that determine the overall performance of the building system, respecting regulations and project indications. It chooses components and creates internal and external lighting systems suitable for achieving the objectives of low pollution and consumption and guaranteeing comfort conditions, creates photovoltaic and micro-wind systems, installs regulation, remote control and consumption monitoring systems. It operates in the private and public market of residential construction and for the tertiary sector, in the construction of high-rise systems energy efficiency, in new or existing buildings to be redeveloped. In carrying out his work he relates to other professional figures in the design, management and other processes for effectively integrate their work towards achieving the energy and sustainability objectives set out in the project.	
TARGET GROUPS ADDRESSED*	Craftsman	
DIDACTIC METHOD (classes, workshops, internships)	Participation in a specific training course is not required.	
DURATION OF COURSE		
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	https://www.odatech.it/it/certificazione-delle-competenze/elenco-esperti/	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.odatech.it/it/	
SPONSORING INSTITUTION (keep track of the source of information)	Odatech - Organismo di abilitazione e certificazione - Piazza Manifattura, 1 38068 Rovereto (TN)	

Units of Learning Outcome 1. (ULO)	Specific skills
Knowledge & skills	Read the project, the descriptive data and the energy-environmental sustainability objectives established. Analyze the main factors that determine the overall performance of the building / plant system. Building photovoltaic systems. Create low pollution and consumption outdoor lighting systems, with particular reference to street lighting systems. To create low-consumption internal lighting systems, considering the principles of internal comfort, with particular reference to the workplace. Install regulation and remote control systems. Install equipment for monitoring consumption.

ITALY - code:		I20
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Window manufacturer expert	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The window manufacturer specializing in sustainable construction creates high energy efficiency windows, taking into account the main factors that determine the overall performance of the building / plant system with respect to the consumption and sustainability objectives established in the project. It consistently carries out the choice of materials, products and construction elements and identifies the construction, assembly and installation methods of the doors and windows to achieve the desired results. It creates darkening systems, optimization of indoor natural lighting and passive solar systems ensuring comfort and energy saving conditions. It operates in the private and public market of residential construction and for the tertiary sector, in the sector of doors and windows for low consumption buildings in masonry and wood, new or existing to be redeveloped for energy consumption. In carrying out the work, he relates with other professional figures in the design, management and other processes to effectively integrate his work towards the achievement of the energy and sustainability objectives set by the project.	
TARGET GROUPS ADDRESSED*	Craftsman	
DIDACTIC METHOD (classes, workshops, internships)	Participation in a specific training course is not required.	
DURATION OF COURSE		
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	https://www.odatech.it/it/certificazione-delle-competenze/elenco-esperti/	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.odatech.it/it/	
SPONSORING INSTITUTION (keep track of the source of information)	Odatech - Organismo di abilitazione e certificazione - Piazza Manifattura, 1 38068 Rovereto (TN)	

Units of Learning Outcome 1 (ULO)	Specific skills
Knowledge & skills	Read the project, the descriptive data and the energy-environmental sustainability objectives established. Analyze the main factors that determine the overall performance of the building / plant system. Make the choice of materials, products and elements on the basis of technical data sheets and certifications, correctly associating materials, products and construction elements in compliance with the energy performance defined in the project and identifying them in a the characteristics attributable to their environmental energy sustainability are adequate. Identify potential thermal bridges, areas of air infiltration, acoustic bridges (direct and for flanking) and water tightness problems by reading the project drawings, also with particular reference to the characteristics of energy- environmental sustainability construction elements and their influence on the conditions of comfort and quality of the internal environment. Create continuous ventilated glass walls with attention to the problems of waterproofing, summer and winter ventilation and reduction of point thermal bridges. Correctly install windows and doors in new buildings and in the redevelopment of existing buildings, respecting the energy consumption objectives established by the project and the current legislation on the subject. Realize dimming systems, optimization of indoor natural lighting and passive solar systems ensuring conditions of comfort, quality of the indoor environment and energy efficiency.

ITALY - code:		I21
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Plumbing and heating specialist	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The plumbing and heating specialist in sustainable construction creates systems with high energy efficiency, overall performance of the building system, respecting regulations and project indications. It adopts suitable room regulation and remote control systems, uses high energy efficiency generators, creates low temperature systems, solar energy integration systems as well as controlled air treatment and exchange, in order to achieve the energy performance objectives and guarantee conditions of comfort. It operates in the private and public market of residential construction and for the tertiary sector in the construction of high energy efficiency systems in new or existing buildings to be redeveloped. In carrying out the work, it relates to other professional figures responsible for the design, management and other processes, to effectively integrate its work towards the achievement of the energy and sustainability objectives envisaged by the project.	
TARGET GROUPS ADDRESSED*	Craftsman	
DIDACTIC METHOD (classes, workshops, internships)	Participation in a specific training course is not required.	
DURATION OF COURSE		
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	https://www.odatech.it/it/certificazione-delle-competenze/elenco-esperti/	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.odatech.it/it/	
SPONSORING INSTITUTION (keep track of the source of information)	Odatech - Organismo di abilitazione e certificazione - Piazza Manifattura, 1 38068 Rovereto (TN)	

Units of Learning Outcome 1 (ULO)	Specific skills
Knowledge & skills	Read the project, the descriptive data and the energy-environmental sustainability objectives established. Analyze the main factors that determine the overall performance of the building / plant system. Evaluate and reduce the emission and distribution losses in heating and domestic hot water production systems. Evaluate the efficiency of the control subsystem and use single room control systems. Install generation systems with high energy efficiency, also recognizing the elements of attention as regards sustainability in the construction phase, with particular attention to the sustainable management of the construction site and plants. Evaluate real consumption. Carry out energy requalification interventions also recognizing the elements of attention as regards sustainability in the construction phase, with particular attention to the sustainable management of the construction site and plants. Check and maintain low consumption systems. Install solar energy integration systems, also recognizing the elements of attention as regards sustainability in the construction phase, with particular attention to the sustainable management of the construction site and plants. Create low temperature systems. Implement controlled ventilation systems, also recognizing the elements of attention as regards sustainability in the construction phase, with particular attention to the sustainable management of the construction site and plants

ITALY - code:		I22
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Expert Craftsman Casaclima	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The characteristic of Expert Craftsman Casaclima is the high-quality standard achieved in their areas of expertise, the commitment through sustainable economic management in respect of people and the environment. The objective of the cooperation is to develop and strengthen their skills in order to promote sustainable and quality construction. The logo "Expert Craftsman Casaclima" is a recognition for companies of craftsmen who have acquired special knowledge and expertise in energy efficiency and sustainability in construction. The same time acquire the title of "Expert Craftsman Casaclima" and as such are published on the Agency's portal Casaclima	
TARGET GROUPS ADDRESSED*	Craftsman	
DIDACTIC METHOD (classes, workshops, internships)	The course develops the skills acquired in the basic course and is aimed at artisans who want to implement their knowledge on the construction and plant engineering techniques of efficient buildings. The course is structured in four days dedicated to the in-depth study of aspects concerning the envelope and systems. The central theme is the analysis of a typical rehabilitation project through the articulation of lectures and workshops, in particular, it shows with extensive use of practical examples and on site, the solutions for thermal insulation, the correct use and installation of materials and systems, innovative plant solutions and their correct installation.	
DURATION OF COURSE	32 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	attendance of the "Basic course" plus "Advanced craftsmen course" or the "Basic craftsman course" plus "" Windows & Doors "course plus" Workshop "course	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	https://www.agenziacasaclima.it/it/rete-casaclima/artigiani-casaclima-1677.html	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	Agenzia per l'Energia Alto Adige – CasaClima, Via A. Volta 13, 39100 Bolzano - Alto Adige, Italia	
SPONSORING INSTITUTION (keep track of the source of information)	https://www.agenziacasaclima.it/it/avanzato-per-artigiani-bolzano--6-1239.html	

Units of Learning Outcome 1 (ULO)	SUSTAINABILITY AND REGULATIONS (IS6, IS7) – PROF/TRAC
Knowledge & skills	Introduction to the fundamentals of energy restoration, Sustainability: the CasaClima Nature protocol, Regulations: incentives and certification, Cost-benefit analysis.

Units of Learning Outcome 2 (ULO)	ENVELOPE REFURBISHMENT OF BUILDING (ER1, ER2, ER5, ER7, ER10) – PROF/TRAC
Knowledge & skills	Refurbishment of the roof - external wall - floors, Properties of building materials, Markings, ecological certificate, Insulating materials and taping, Resolutions of thermal bridges, State-of-the-art assembly examples: details, Windows and doors, Insulating glasses, frames, spacers, Shading systems, References / examples of buildings: examination of, different details of windows / doors / systems, shading.

Units of Learning Outcome 3 (ULO)	PLANTS (EPO) – PROF/TRAC
Knowledge & skills	Mechanical controlled ventilation system, Heat generators: heating and DHW, Accumulation, regulation, distribution, emission, Sanitary installations, Electrical systems, Photovoltaic and micro-wind, Home automation, Issues in the installation plant.

5 ANNEX – PROFESSIONAL QUALIFICATIONS OF SPAIN

SPAIN - code:		S01
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	ENA190_2 - Installation and Maintenance of solar thermal installation	
EQF Level, if any	2	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	General competence :;Carry out the assembly, set up, operation and maintenance of photovol installations accomplishing with the applicable regulations...;;Professional field:;Develops the p in the production area dedicated to carrying out the assembly, operation and maintenance of s installations, in public or private entities, small, medium or large companies, both on his own a behalf of others, with independence of its legal form.; ; Develops the activities depending, if ap functionally and / or hierarchically on a superior. You can have staff under your charge occasio on a permanent basis. His professional activity is subject to regulation by the competent Admi development of professional activity, the principles of universal accessibility are	
TARGET GROUPS ADDRESSED*	Potential applicants to;; Solar thermal installations assemblers. ; Maintainers of solar thermal thermal installation operators.	
DIDACTIC METHOD (classes, workshops, internships)	Face-to-face classes in: Classroom; Workshops; Hands-on workshop; Lab technician; Singula training needs	
DURATION OF COURSE	540 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Level 2; • Mandatory Secondary Education Certificate (ESO); • Admission test to the Middle Ed Cycle.; • Professional Certification of level 1 of the same professional training family.; •Univers (PAU) for people over 25.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	-	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	-	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	-Order PRE 1615-2015 about Qualifications updating of the ENA Family; -CTE, Technical Cod	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	MINISTRY OF EDUCATION AND PROFESIONAL TRAINING, INCUAL ; www.incual.mecd.es	
SPONSORING INSTITUTION (keep track of the source of information)	. www.incual.mecd.es ; ; Projects and collaborations ; Instituto Nacional de la Cua Fondo Social Europeo; APRENDE a lo largo de la vida; Refenet; Todo FP.es; SpainSkill Europeo "Horizon 2020"; Correos (Agreement)	

Units of Learning Outcome 1 (ULO)	DEFINITION AND MONITORING OF WORKS
Knowledge & skills	Planning and organization methodology; Study price; Building documents and actors

Units of Learning Outcome 2 (ULO)	CONDUCTING AND CARRYING OUT ENERGY PERFORMANCE WORKS ON THE BUILDI
Knowledge & skills	Structural work and masonry constructions; Frame, wood constructions and insulation; Indoor distributed thermal insulation; Air tightness; Approach using biobased materials;

Units of Learning Outcome 3 (ULO)	EQUIPMENT INTEGRATION
Knowledge & skills	Electrical and home automation networks; Heating / renewable energy and ventilation network

Units of Learning Outcome 4 (ULO)	MF0601_2: UNIT OF COMPETENCE 1; Set up of solar thermal installations (90 horas); ; RP 1 collectors and hydraulic circuits in solar thermal installations from a project or technical memor assembly.; RP 2: Set up the electrical installations of solar thermal systems from a project or a to carry out their assembly.; RP 3: Set up the integration of solar thermal installations in the re thermal installations, based on a project or a technical report, to carry out their assembly.
Knowledge & skills	Skills and evaluation criteria; C1: Analyse the hydraulic and thermodynamic operation of solar installations, determining their characteristics and the elements related to assembly.; C2: Anal electrical installations required by solar thermal systems.; C3: Interpret projects of solar therm carrying out stakeout or set up operations and others related to their assembly.; ; Other skills; a good professional. ; Propose alternatives with the objective to improve results. ; Get used to organization's work. ; Take responsibility for the work you do. ; Demonstrate flexibility to under Interpret and execute work instructions.

Units of Learning Outcome 5 (ULO)	MF0602_2 UNIT OF COMPETENCE 2; Mechanical and hydraulic assembly of solar thermal installations (in hours); ; RP 1: Organize the assembly work, according to the project and assembly program, of collectors, equipment and hydraulic circuits in solar thermal installations; ; RP 2: Apply preventive emergency measures, established in the company's safety plan, during the assembly of collector hydraulic circuits of solar thermal installations, to avoid accidents and minimize risks.; RP 3: Assemble collectors based on plans and technical specifications, complying with established procedures and regulations.; RP 4: Assemble the hydraulic circuits of the solar thermal installations, based on specifications, complying with the established procedures of the applicable regulations.
Knowledge & skills	Skills and evaluation criteria; C1: Organize the work for the mechanical and hydraulic assembly installations in accordance with the project and established work procedures; C2: Analyse the safety measures regarding the mechanical and hydraulic assembly of solar thermal installation safety plans of the companies in the sector.; C3: Carry out mechanical and hydraulic assembly thermal installations based on the technical documentation, using the established tools, equipment and acting under safety regulations.; ; Other skills ; The same as those established in the previous module. Finish the work according to criteria of suitability, speed, economy and efficiency.; Communicate the right people at all times, respecting the channels established in the organization.
Units of Learning Outcome 6 (ULO)	MF0603_2: UNIT OF COMPETENCE 3; Electrical assembly of solar thermal installations (90 minutes); Organize the assembly work, according to the project and assembly program, for the installation of electrical circuits and equipment in solar thermal installations.; RP 2: Apply preventive, corrective and emergency measures, established in the company's safety plan, during the assembly of electrical circuits solar thermal installations, to avoid accidents and minimize risks.; RP 3: Assemble electrical circuit equipment for regulation and control of solar thermal installations based on technical plans and complying with the established procedures and applicable regulations.
Knowledge & skills	Skills and evaluation criteria; C1: Organize the work for the assembly of the electrical circuits of a solar thermal installation in accordance with the corresponding project and the established work procedures; C2: Analyse prevention and security measures regarding the assembly of electrical circuits and equipment thermal installations, considering the security plans of companies in the sector.; C3: Carry out operations of the electrical circuits and equipment of solar thermal installations based on the technical documentation, using the established tools, equipment and materials and acting under safety regulations.; ; The same as those established in the previous module.
Units of Learning Outcome 7 (ULO)	MF0604_2: UNIT OF COMPETENCE 4; Commissioning and operation of solar thermal installations (120 minutes); RP 1: Prepare the start-up of solar thermal installations, based on plans and technical specifications with established procedures and applicable regulations.; RP 2: Apply preventive, corrective and emergency measures, established in the company's safety plan, during the commissioning of solar thermal installations to avoid accidents and minimize risks.; RP 3: Carry out the commissioning and functional verification of installations based on technical plans and specifications, complying with the established procedures and applicable regulations.; RP 4: Operate the distribution system of the primary and secondary circuits and control and regulation elements of the solar thermal installation, complying with the established and the applicable regulations.
Knowledge & skills	Skills and evaluation criteria; C1: Carry out checking operations prior to putting into service solar installations, complying with the applicable regulations.; C2: Analyse the prevention and security measures regarding the commissioning of solar thermal installations contained in the security plans of the sector, complying with the applicable regulations.; C3: Carry out commissioning operations for installations, using the indicated tools, equipment and materials.; C4: Carry out operating maintenance thermal installations, using the indicated tools, equipment and materials.; ; Other skills ; The same as established in the previous module.
Units of Learning Outcome 8 (ULO)	MF0605_2: UNIT OF COMPETENCE 5; Mantenimiento de instalaciones solares térmicas (120 minutes); Organize the maintenance work of solar thermal installations according to the established procedures.; RP 2: Apply preventive, corrective and emergency measures, established in the plan, during the maintenance of solar thermal installations, to avoid accidents and minimize risks preventive maintenance operations for solar thermal installations, based on plans and technical specifications complying with established procedures and applicable regulations, for their operation within the parameters.; RP 4: Carry out corrective maintenance operations in solar thermal installations, action process, using instruction manuals and plans and restoring functional conditions with the and safety, to restore functional conditions with the established quality and safety.; RP 5: Carry out operations on the components of solar thermal installations, establishing the action process, using manuals and plans, to restore functional conditions with the required quality and safety.

Knowledge & skills	Skills and evaluation criteria; ; C1: Analyse the general operation of solar thermal installations maintenance plan.; C2: Analyse the prevention and security measures regarding the maintenance installations, taking into account the security plans of the companies in the sector. ; C3: Carry maintenance operations for solar thermal installations, using the indicated tools, equipment and Carry out corrective maintenance operations on solar thermal installations using the indicated and materials.; C5: Carry out repair operations on the elements of solar thermal installations, u tools, equipment and materials.; ; Other skills;; The same as those established in the previous
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SPAIN - code:		S02
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	ENA193_3 - Management of the assembly and maintenance of wind farms	
EQF Level, if any	3	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	General competence : Carry out the coordination of the assembly, commissioning and management of the operation and maintenance of wind energy parks and installations, with the required quality and safety and complying with the applicable regulations.; ; Professional field : Develops the professional activity in the field of engineering, planning and logistics dedicated to assembly, and in the area of operation and maintenance dedicated to the operation of wind farms, in public or private entities, small, medium or large companies , both self-employed and employed, regardless of their legal form. ; ; Develops its activity depending, where appropriate, functionally and / or hierarchically on a superior. You can have staff under your charge occasionally, seasonally or on a permanent basis. His professional activity is subject to regulation by the competent Administration. In the development of professional activity, the principles of universal accessibility are applied in accordance with the applicable regulations. ; www.incual.mecd.es; www.cualifica2.es/cualificacion/ENA/Energia-y-agua	
TARGET GROUPS ADDRESSED*	Potential applicants to:; Operation and maintenance management technicians in wind installations; Responsible for assembling wind farms ; Responsible for assembling wind turbines; Specialists for assembling wind turbines ; Specialists in wind farm maintenance;	
DIDACTIC METHOD (classes, workshops, internships)	Face-to-face classes in:; Classroom; Workshops; Hands-on workshop; Lab technician; Singular spaces for training needs	
DURATION OF COURSE	570 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Level 3; • Baccalaureate degree.; • Professional Certification of the same level; • Admission test to the Middle Superior Grade ; Training Cycle.; • Professional Certification of level 2 of the same professional training family.;	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	-	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	-	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	-Order PRE 1615-2015 about Qualifications updating of the ENA Family; -CTE, Technical Code for Building	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	MINISTRY OF EDUCATION AND PROFESIONAL TRAINING, INCUAL ; www.incual.mecd.es	
SPONSORING INSTITUTION (keep track of the source of information)	- www.incual.mecd.es ; ; PROYECTOS Y COLABORACIONES ; Instituto Nacional de la Cualificaciones; Fondo Social Europeo; APRENDE a lo largo de la vida; Refenet; Todo FP.es; SpainSkills; Proyecto Europeo "Horizon 2020"; Correos (Agreement)	

Units of Learning Outcome 1 (ULO)	MF0615_3. UNIT OF COMPETENCE 1: Development of projects for the assembly of wind power installations (150 hours); ; RP 1: Prepare supply and assembly programs for wind energy installations.; RP 2: Organize the preliminary assembly processes for wind energy installations, supervising their execution; RP 3: Supervise the assembly of wind energy installations, their accessories and control and regulation elements, based on plans, standards and technical specifications of the project, complying with the established procedures and applicable regulations.; RP 4: Develop technical reports and projects for small installations of wind turbines without connection to the grid.
Knowledge & skills	Skills and evaluation criteria; C1: Analyse the operation of wind power installations determining the technical specifications necessary for assembly.; C2: Organize the assembly process of wind energy installations based on the corresponding technical projects.; C3: Develop supply programs for the assembly of wind energy installations ; C4: Prepare work plans for the assembly of wind energy installations according to the corresponding projects and established work procedures.; C5: Define the quality criteria in the assembly operations of wind energy installations based on the technical documentation, complying with the established procedures and applicable regulations.; C6: Develop technical reports and projects for the assembly of small-power wind energy installations, writing the necessary technical documentation to carry out the assembly.; ; Other skills:; Take responsibility for the work you develop, meeting the established objectives and deadlines.; Demonstrate being a good professional; Adapt to new situations and contexts.; Share information with the work team.; Participate and actively collaborate in the work team.; Demonstrate flexibility to understand changes

Units of Learning Outcome 2 (ULO)	MF0616_3: UNIT OF COMPETENCE 2: Manage the commissioning and operation of wind energy installations (90 hours); ; RP 1: Develop the start-up and energization processes of wind energy installations, supervising their implementation.; RP 2: Carry out operating maneuvers, acting on the wind energy regulation and control system, based on plans, standards and technical specifications, complying with the established procedures and applicable regulations.; RP 3: Operate in remote control systems for the management of wind farms, according to the established procedures, for the control of the wind energy installation; RP 4: Collaborate in the development of security plans for wind energy installations, organizing and supervising their implementation to guarantee safety and compliance with applicable regulations.
Knowledge & skills	Skills and evaluation criteria; C1: Develop and coordinate the start-up and energization processes of wind energy installations.; C2: Carry out operating maneuvers in wind power facilities based on technical documentation, using the appropriate tools, equipment and materials, and complying with the established procedures and applicable regulations.; C3: Operate in remote control systems for the management of wind farms, following the established procedures.; C4: Collaborate in the development of security plans for wind energy installations, organizing and supervising their implementation.; Other skills: See module 1

Units of Learning Outcome 3 (ULO)	MF0617_3: UNIT OF COMPETENCE 3; Maintenance management of wind energy installations (120 hours); ; RP 1: Design and develop maintenance programs for wind energy installations.; RP 2: Organize preventive, predictive and corrective maintenance processes for wind energy installations, supervising them for their application.; RP 3: Apply proactive maintenance techniques in wind energy facilities to identify and correct failures in component equipment and facilities in order to implement solutions that attack the cause of problems, complying with established procedures and applicable regulations.
Knowledge & skills	Skills and evaluation criteria; C1: Analyse the general operation of wind installations, establishing the maintenance plan.; C2: Design and develop maintenance programs for wind energy installations.; C3: Coordinate the preventive, predictive and corrective maintenance work of the equipment and components of the wind energy facilities.; C4: Supervise the corrective maintenance processes of wind energy installations.; C5: Apply proactive maintenance techniques in wind energy installations.; ; Other skills: ; Take responsibility for the work you develop, meeting the established objectives and deadlines.; Demonstrate being a good professional.; Share information with the work team. Communicate effectively with the right people, at all times, respecting the channels established in the organization.; Get used to the rhythm of the organization's work.; Adapt to new situations or contexts.
Units of Learning Outcome 4 (ULO)	MF0618_2: UNIT OF COMPETENCE 4; Safety and professional risk assessment in wind farms (60 hours); ; RP 1: Evaluate the professional risks derived from the assembly, operation and maintenance of wind turbines for their prevention.; RP 2: Manage the safety and personal protection equipment used in the assembly and maintenance of wind farms and turbines, defining them and; Keeping them in a state of use, to avoid accidents and minimize risks.; RP 3: Safely use the hooking, lifting and signaling equipment used in the assembly and maintenance tasks of wind turbines, to avoid accidents and minimize risks.; RP 4: Use the safety equipment and procedures to perform the ascent and descent of the wind turbine, complying with the safety plan and applicable regulations, to avoid accidents and minimize risks.; RP 5: Act according to the company's safety plan in the assembly and maintenance maneuvers on the turbine or on the wind turbine's electrical system, to avoid accidents and minimize risks.; RP 6: Act in emergencies in the shortest time possible, taking into account quality and safety conditions.
Knowledge & skills	Skills and evaluation criteria; ; C1: To develop criteria and criteria and classification systems that allow evaluating the professional risks derived from the assembly, operation and maintenance of wind turbines.; C2: Describe the different safety and personal protection equipment used in the assembly and maintenance of wind farms.; C3: Analyse the ascent and descent maneuvers of materials and people in a wind turbine, describing the procedures and equipment necessary to perform them safely.; C4: Analyse the conditions and procedures that guarantee safety in the assembly and maintenance of wind farms.; C5: Assess the emergency devices against accidents, describing each one of them and establishing the actions to be carried out in each case.; ; Other skills: ; Take responsibility for the work you develop and for meeting the objectives. Respect the internal procedures and rules of the organization. Interpret and execute work instructions.; Demonstrate a certain degree of autonomy in the resolution of contingencies related to their activity.; Ability to respond rationally to emergency situations with empathy and poise.; Propose alternatives with the objective to improve results.
Units of Learning Outcome 5 (ULO)	MF0619_2: UNIT OF COMPETENCE 5; Assembly and maintenance of wind energy installations (150 hours); ; RP 1: Organize the assembly and maintenance work of wind energy installations in accordance with the corresponding project.; RP 2: Apply preventive, corrective and emergency measures, established in the company's safety plan, during the assembly and maintenance of wind energy installations, to avoid accidents and minimize risks.; RP 3: Assemble wind turbines, their accessories and control and regulation elements, based on plans, standards and technical specifications, complying with the established procedures and applicable regulations.; RP 4: Carry out preventive and / or predictive maintenance of wind energy installations based on plans, standards and technical specifications and complying with established procedures and applicable regulations.; RP 5: Carry out corrective maintenance operations in wind energy facilities, establishing the action process, using instruction manuals and plans, to restore functional conditions with the established quality and safety.
	Skills and evaluation criteria; C1: Develop a work plan based on an assembly project or a specific maintenance task.; C2: Carry out the assembly operations of a wind turbine in a wind energy installation.; C3: Carry out preventive maintenance operations in a wind energy installation, interpreting the maintenance manuals and following general instructions.; C4: Carry out corrective maintenance operations in a wind energy installation, properly interpreting the instructions, projects, plans and maintenance manuals.; ; Other skills;; Take responsibility for the work you develop and for meeting the objectives. Finish the work responding to criteria of suitability, speed, economy and efficiency.; Demonstrate a certain degree of autonomy in the resolution of contingencies related to their activity.; Participate and actively collaborate in the work team.; Get used to the rhythm of the organization's work.; Demonstrate good professional work.

SPAIN - code:		S03
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	ENA261 2 Assembly and Maintenance of Solar Photovoltaic Installations	
EQF Level, if any	2	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	General competence ; Carry out the assembly, commissioning, operation and maintenance of photovoltaic solar installations complying with the applicable regulations.; Efectuar el montaje, puesta en servicio, operación y mantenimiento de instalaciones solares fotovoltaicas cumpliendo la normativa aplicable.; ; Professional field ; Develops the professional activity in the production area dedicated to the assembly and maintenance of photovoltaic solar installations, in public or private entities, companies of any size, both self-employed and employed, regardless of their legal form.; ; Develops its activity depending, where appropriate, functionally and / or hierarchically on a superior. You can have staff under your charge occasionally, seasonally or on a permanent basis. His professional activity is subject to regulation by the competent Administration. In the development of professional activity, the principles of universal accessibility are applied in accordance with the regulations.; www.incual.mecd.es ; www.cualifica2.es/cualificacion/ENA/Energia-y-agua	
TARGET GROUPS ADDRESSED*	Potential applicants to: Assemblers of photovoltaic solar installations Operators of photovoltaic solar installations. Maintainers of photovoltaic solar installations.	
DIDACTIC METHOD (classes, workshops, internships)	Face-to-face classes in: Classroom; Workshops; Hands-on workshop; Lab technician; Singular spaces for training needs	
DURATION OF COURSE	450 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Level 2: • Mandatory Secondary Education Certificate (ESO); • Admission test to the Middle Educational Training Cycle.; • Professional Certification of level 1 of the same professional training family.; • University Entrance Exam (PAU) for people over 25.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	-	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	-	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	-Order PRE 1615-2015 about Qualifications updating of the ENA Family; -CTE, Technical Code for Building	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	MINISTRY OF EDUCATION AND PROFESIONAL TRAINING, INCUAL; www.incual.mecd.es	
SPONSORING INSTITUTION (keep track of the source of information)	• www.incual.mecd.es ; ; PROYECTOS Y COLABORACIONES; Instituto Nacional de la Cualificaciones; Fondo Social Europeo; APRENDE a lo largo de la vida; Refenet; Todo FP.es; SpainSkills; Proyecto Europeo "Horizon 2020"; Correos (Agreement)	

Units of Learning Outcome 1 (ULO)	UC0835_2: UNIT OF COMPETENCE 1 ; Set up of photovoltaic solar installations; ; RP 1: Set up photovoltaic panels based on the project or technical report, complying with the applicable regulations for photovoltaic solar installations.; RP 2: Set up photovoltaic solar installations connected to the grid from a project or technical report, complying with the applicable regulations for solar photovoltaic installations.; RP 3: Set up isolated photovoltaic solar installations from a project or technical report, complying with the applicable regulations for photovoltaic solar installations.; RP 4: Set up the energy support system in isolated installations based on a project or technical memory to carry out its assembly, complying with the applicable regulations for photovoltaic solar installations.
Knowledge & skills	Skills and evaluation criteria; ; C1: Analyse the most relevant functions, laws and rules of electricity, describing the functionality of the electrical elements and sets present in photovoltaic solar installations.; C2: Analyse the operation of photovoltaic solar installations connected to the grid to determine their characteristics and elements related to the layout and assembly of the same.; C3: Analyse the operation of isolated photovoltaic solar installations and their support systems to determine their characteristics and elements related to the layout and assembly of the same.; C4: Interpret projects and technical reports of photovoltaic solar installations connected to the grid to carry out stakeout operations and others related to their assembly.; C5: Interpret projects and technical reports of isolated photovoltaic solar installations with support systems to carry out stakeout operations and others related to their assembly.; ; Other skills: ; Take responsibility for the work you do. ; Demonstrate being a good professional. ; Propose alternatives with the objective to improve results. ; Maintain the work area with the degree of order and cleanliness required by the organization.; Participate and actively collaborate in the work team. Interpret and execute work instructions.

Units of Learning Outcome 2 (ULO)	UC0836_2: UNIT OF COMPETENCE 2: Assembly of photovoltaic solar installations; ; RP 1: Organize the assembly of supports, panels, storage system, support systems, monitoring systems, circuits and electrical and electronic equipment of photovoltaic solar installations according to the project and assembly program.; RP 2: Apply preventive, corrective and emergency measures, established in the safety plan, during the assembly of photovoltaic solar installations to avoid accidents and minimize risks.; RP 3: Assemble supports and panels, where appropriate with a monitoring system, based on plans and technical specifications, complying with the applicable regulations for the assembly of photovoltaic solar installations.; RP 4: Assemble the storage / accumulation systems, based on plans and technical specifications, complying with the applicable regulations for the assembly of photovoltaic solar installations.; RP 5: Assemble electrical circuits and equipment, based on plans and technical specifications, complying with the applicable regulations for the assembly of photovoltaic solar installations.; RP 6: Assemble conventional generator sets, small-power wind systems and other support systems, based on plans and technical specifications, complying with the applicable regulations for the assembly of photovoltaic solar installations.; RP 7: Putting photovoltaic solar installations into service, based on plans and technical specifications, checking their operation and complying with applicable regulations.
Knowledge & skills	Skills and evaluation criteria; ; C1: Prepare work plans for the mechanical and electrical assembly of photovoltaic solar installations according to projects or technical reports and established work procedures.; C2: Analyse the prevention and security measures regarding the mechanical and electrical assembly of photovoltaic solar installations contained in the security plans of the companies in the sector.; C3: Carry out assembly operations for solar installation structures based on technical documentation, using the appropriate tools, equipment and materials and acting under safety regulations.; C4: Carry out mechanical and electrical assembly operations and commissioning of photovoltaic solar installations based on technical documentation, using the appropriate tools, equipment and materials and acting under safety regulations.; ; Other skills;: Recognize the productive process of the organization.; Comply with the production standards set by the organization.; Maintain the work area with the degree of order and cleanliness required by the organization.; Participate and actively collaborate in the work team. ; Interpret and execute work instructions.
Units of Learning Outcome 3 (ULO)	UC0837_2: UNIT OF COMPETENCE 3: Maintenance of photovoltaic solar installations; ; RP 1: Organize the maintenance work of photovoltaic solar installations according to the established intervention procedures.; RP 2: Apply preventive, corrective and emergency measures, established in the safety plan, during the maintenance of photovoltaic solar installations, to avoid accidents and minimize risks.; RP 3: Carry out the maneuvering operations and preventive maintenance of the photovoltaic solar installations, based on plans and technical specifications, for their operation within the established parameters, complying with the applicable regulations.; RP 4: Carry out corrective maintenance operations in photovoltaic solar installations, using instruction manuals and plans, to restore functional conditions with the established quality and safety.;
Knowledge & skills	Skills and evaluation criteria; ; C1: Analyze the general operation of photovoltaic solar installations to develop the maintenance plan.; C2: Analyze the prevention, safety and environmental protection measures regarding the maintenance of photovoltaic solar installations contained in the safety plans of the companies in the sector.; C3: Carry out preventive maintenance operations for photovoltaic solar installations following the procedures and specifications of the installation's maintenance plan.; C4: Carry out corrective maintenance operations on the photovoltaic solar installations according to the established procedures to return them to their operating state within the established parameters.; ; Other skills;: Demonstrate some autonomy in solving small contingencies related to their activity.; Recognize the productive process of the organization.; Comply with the production standards set by the organization.; Maintain the work area with the degree of order and cleanliness required by the organization.; Interpret and execute work instructions.; Respect the internal procedures and rules of the organization.

SPAIN - code:		S04
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	EN263 3 - Organization and projects of photovoltaic solar installations	
EQF Level, if any	3	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	General competence : Promote installations, develop projects and manage the assembly and maintenance of isolated and grid-connected photovoltaic solar installations, applying the techniques and procedures required in each case, optimizing resources, and complying with applicable regulations.; Professional field : Development of professional activity in the production area dedicated to the development and organization of photovoltaic solar installation projects, in public or private entities, companies of any size, both self-employed and employed, regardless of their legal form. It develops its activity depending, where appropriate, functionally and / or hierarchically on a superior. You can have staff under your charge occasionally, seasonally or on a permanent basis. His professional activity is subject to regulation by the competent Administration. In the development of professional activity, the principles of universal accessibility are applied in accordance with the applicable regulations.; www.incual.mecd.es ; www.cualifica2.es/cualificacion/ENA/Energia-y-agua	
TARGET GROUPS ADDRESSED*	Potential applicants to:; Promoters of solar installations; Designers of photovoltaic solar installations Responsible for assembly of photovoltaic solar installations Responsible for maintenance of photovoltaic solar installations; Responsible for the operation and maintenance of small photovoltaic solar plants	
DIDACTIC METHOD (classes, workshops, internships)	Face-to-face classes in:; Classroom; Workshops; Hands-on workshop; Lab technician; Singular spaces for training needs	
DURATION OF COURSE	570 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Level 3; • Baccalaureate degree.; • Professional Certification of the same level; • Admission test to the Middle Superior Grade ; Training Cycle.; • Professional Certification of level 2 of the same professional training family.;	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	-	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	-	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	-Order PRE 1615-2015 about Qualifications updating of the ENA Family; -CTE, Technical Code for Building	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	MINISTRY OF EDUCATION AND PROFESIONAL TRAINING, INCUAL ; www.incual.mecd.es	
SPONSORING INSTITUTION (keep track of the source of information)	• www.incual.mecd.es ; ; PROYECTOS Y COLABORACIONES ; Instituto Nacional de la Cualificaciones; Fondo Social Europeo; APRENDE a lo largo de la vida; Refenef; Todo FP.es; SpainSkills; Proyecto Europeo "Horizon 2020"; Correos (Agreement)	

Units of Learning Outcome 1 (ULO)	MF0842_3. UNIT OF COMPETENCE 1; Determinar la viabilidad de proyectos de instalaciones solares (120 hours); ; RP 1: Evaluate the energy needs and interests of the user, classifying them for decision-making on the type and characteristics of the most appropriate energy supply, complying with the applicable regulations.; RP 2: Determine the solar potential of an area for decision making on the possibilities of applying solar energy, complying with the applicable regulations.; RP 3: Formalize proposals for solar installations responding to the energy needs and interests of customers, to determine the option that optimizes the available resources.;
Knowledge & skills	Skills and evaluation criteria; C1: Quantify the energy needs of the user, classifying and analysing them to diagnose the possibility of carrying out a solar installation.; and analysing them to diagnose the possibility of carrying out a solar installation.; C2: Define the solar potential of a specific area for the realization of solar installations, using the established procedures and means, and complying with the applicable regulations; C3: Prepare proposals for solar installations, aimed at clients, in which the characteristics of the installation and the analysis of the regulatory framework and applicable subsidies are collected.; ; Other skills;; Treat the client with courtesy, respect and discretion.; Demonstrate interest and concern to satisfactorily meet customer needs; Have initiative to promote projects. ; Participate and actively collaborate in the work team.; Ability to adapt to the context and needs of people

Units of Learning Outcome 2 (ULO)	MF0842_3. UNIT OF COMPETENCE 2; Manage the commissioning and operation of wind energy installations (90 hours); ; RP 1: Define the characteristics of the photovoltaic solar installation, applying calculation procedures and established standards, to select the necessary equipment and elements, and their specifications.; RP 2: Carry out reports, reports and manuals required by official regulatory bodies to justify projects for photovoltaic solar installations.; RP 3: Prepare general and detailed layout plans of photovoltaic solar installations, based on the technical design specifications established for; project, achieving the required levels of quality and finish.; RP 4: Prepare budgets from the designs made, detailing the different items, for the development of photovoltaic solar installation projects.; RP 5: Prepare the health and safety plan in the assembly of the photovoltaic solar installation, using the project documentation and ensuring compliance with the applicable regulations, to avoid accidents and minimize risks.; RP 6: Carry out the administrative procedures required to obtain the authorization of the photovoltaic solar installation and to access possible subsidies.
Knowledge & skills	Skills and evaluation criteria; C1: Analyse the typologies of photovoltaic solar installations, selecting the most adapted to the construction characteristics, the user's energy needs and the applicable regulations.; C2: Determine the elements that make up the photovoltaic solar installations, using the established procedures and means, and complying with the applicable regulations.; C3: Draw, on the suitable support, the plans, operating principles, general and detailed diagrams that make up the graphic documentation for the assembly project of the photovoltaic solar installation.; C4: Prepare reports, budgets and the rest of the technical documentation of the project for the assembly, maintenance and use of the photovoltaic solar installation.; C5: Prepare health and safety plans for the assembly of photovoltaic solar installations; C6: Prepare the necessary file documentation for administrative authorization and to obtain, where appropriate, the corresponding subsidies.; ; Other skills;; Demonstrate good professional work.; Finish the job with criteria of suitability, speed, economy and efficiency.; Have initiative to promote projects. Participate and actively collaborate in the work team.; Ability to adapt to the context and needs of people.; Communicate effectively with the right people at all times, respecting the channels established in the organization.

Units of Learning Outcome 3 (ULO)	MF0843_3: UNIT OF COMPETENCE 3; Organize and control the assembly of photovoltaic solar installations (240 hours); ; RP 1: Plan the execution of a photovoltaic solar installation, defining the work phases and interpreting the project or technical report, complying with the applicable regulations.; RP 2: Organize the phase of rethinking, planning and assembly of structures of the photovoltaic solar installation, to follow the established schedule, controlling its execution and making the corresponding adaptations based on the possible contingencies that may arise.; RP 3: Organize the supply and supply of materials to the work according to procedures established in the company, controlling the process and complying with the applicable regulations.; RP 4: Organize the phases of the assembly of the photovoltaic solar installation, to follow the established schedule, controlling its execution and making the corresponding adaptations based on the possible contingencies that may arise.; RP 5: Organize the safety and operation tests and the commissioning of the photovoltaic solar installations, adjusting the equipment and regulation and control elements, controlling the process to ensure the established operating conditions.; RP 6: Organize the health and safety plan in the assembly operations of photovoltaic solar installations, controlling its execution to guarantee the integrity of people, the media and their environment, and complying with the applicable regulations.; RP 7: Manage the documentation related to the assembly processes of the photovoltaic solar installation, to ensure compliance with legal requirements and the application of organizational criteria established by the company.
Knowledge & skills	Skills and evaluation criteria; C1: Manage the technical documentation of photovoltaic solar installations, determining the activities and resources to plan the assembly process.; C2: Develop supply programs for the assembly of photovoltaic solar installations.; C3: Prepare work plans for the assembly of photovoltaic installations according to the project and established work procedures.; C4: Justify the constructive solutions of the resistant structures in the photovoltaic solar installation and control the general assembly operations based on the technical documentation, complying with the applicable regulations.; C5: Control the general assembly operations based on the technical documentation, complying with the applicable regulations.; C6: Define the quality criteria in the assembly and commissioning operations of photovoltaic solar installations based on the technical documentation, complying with the applicable regulations.; ; Other skills: ; Take responsibility for the work you develop and for meeting the objectives.; Transmit information clearly, in an orderly, structured, clear and precise manner, respecting the channels established in the organization.; Show creativity in the development of the work you make.; Demonstrate a certain degree of autonomy in the resolution of contingencies related to their activity.; Propose alternatives with the objective to improve results.
Units of Learning Outcome 4 (ULO)	MF0844_3: UNIT OF COMPETENCE 4; Organization and control of the maintenance of photovoltaic solar installations (90 horas); ; RP 1: Organize the maneuvers and adjustment operations in photovoltaic solar installations, controlling their execution, for the optimization of their operation.; RP 2: Develop maintenance plans for photovoltaic solar installations, keeping them updated and improving them, for their application.; RP 3: Organize the processes and procedures for preventive and corrective maintenance of photovoltaic solar installations, supervising them for their application.; RP 4: Organize the rules and measures for risk prevention, safety, health and the environment in the maintenance of photovoltaic solar installations, to control their application.; RP 5: Control the documentation related to the processes of operation and maintenance of photovoltaic solar installations, to supervise their activity.
Knowledge & skills	Skills and evaluation criteria; ; C1: Analyse the technical documentation of photovoltaic solar installations determining the activities and resources, to plan the maintenance process.; C2: Prepare written procedures for the maintenance operations of photovoltaic solar installations, determining the tasks, materials, means and criteria for the control of the execution.; C3: Apply programming techniques that optimize resources to develop intervention programs and maintenance monitoring.; C4: Control general maintenance operations in photovoltaic solar installations based on technical documentation, applying standardized procedures, corresponding regulations and acting under safety regulations.; ; Other skills: ; Demonstrate good professional work.; Treat the client with courtesy, respect and discretion.; Demonstrate interest and concern to satisfactorily meet customer needs.; Demonstrate a certain degree of autonomy in the resolution of contingencies related to their activity.; Maintain an assertive, empathic and conciliatory attitude towards others, showing cordiality and kindness in dealing.; Transmit information clearly, in a structured, clear and precise manner, respecting the channels established in the organization.

SPAIN - code:		S05
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	EN264_3 - Organization and projects of solar thermal installations	
EQF Level, if any	3	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	General competence 1 ; ; Development of projects and manage the assembly and maintenance of solar thermal installations, controlling the results obtained, applying the techniques and procedures required in each case, optimizing human resources and available means, and complying with applicable regulations.; ; Professional field ; ; Develops the professional activity in the production area dedicated to the organization and projects of solar thermal installations, in public or private entities, small, medium or large-sized companies, both self-employed and employed, regardless of their legal form.; ; Develops its activity depending, where appropriate, functionally and / or hierarchically on a superior. You can have staff under your charge occasionally, seasonally or on a permanent basis. His professional activity is subject to regulation by the competent Administration. In the development of professional activity, the principles of universal accessibility are applied in accordance with the applicable regulations.; www.incul.mecd.es ; www.cualifica2.es/cualificacion/ENA/Energia-y-agua	
TARGET GROUPS ADDRESSED*	Potential applicants.; ; Promoters of solar installations ; Designers of solar thermal installations; Responsible for assembly of solar thermal installations ; Responsible for maintenance of solar thermal installations Technicians of alternative energy systems.	
DIDACTIC METHOD (classes, workshops, internships)	Face-to-face classes in.; ; Classroom; Workshops; Hands-on workshop; Lab technician; Singular spaces for training needs	
DURATION OF COURSE	570 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Level 3; • Baccalaureate degree.; • Professional Certification of the same level; • Admission test to the Middle Superior Grade ; Training Cycle.; • Professional Certification of level 2 of the same professional training family.;	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	-	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	-	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	-Order PRE 1615-2015 about Qualifications updating of the ENA Family; -CTE, Technical Code for Building	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	MINISTRY OF EDUCATION AND PROFESIONAL TRAINING, INCUAL; www.incul.mecd.es	
SPONSORING INSTITUTION (keep track of the source of information)	• www.incul.mecd.es ; ; PROJECTS AND COLLABORATIONS ; Instituto Nacional de la Cualificaciones; Fondo Social Europeo; APRENDE a lo largo de la vida; Refenet; Todo FP.es; SpainSkills; Proyecto Europeo "Horizon 2020"; Correos (Agreement)	

Units of Learning Outcome 1 (ULO)	MF0842_3, UNIT OF COMPETENCE 1: Solar installations feasibility studies s (120 horas); ; RP 1: Evaluate the energy needs and interests of the user, classifying them to make a decision on the type and characteristics of the most appropriate energy supply, complying with the applicable regulations.; RP 2: Determine the solar potential of an area for decision-making on the possibilities of applying solar energy, complying with the applicable regulations.; RP 3: Formalize proposals for solar installations responding to the energy needs and interests of the clients, to determine the option that optimizes the available resources.
Knowledge & skills	Skills and evaluation criteria; C1: Quantify the energy needs of different types of users, classifying and analyzing them to diagnose the possibility of carrying out a solar installation.; and analysing them to diagnose the possibility of carrying out a solar installation.; C2: Define the solar potential of a certain area for the realization of solar installations using the established procedures and means, and complying with the solar of an area to applicable regulations.; C3: Prepare proposals for solar installations, aimed at customers, which include the characteristics of the installation and the analysis of the applicable regulatory and subsidy framework.; ; Other skills: ; Communicate effectively with customers.; Treat the client with courtesy, respect and discretion. Demonstrate interest and concern to satisfactorily meet customer needs. Have initiative to promote projects.; Participate and actively collaborate in the work team. Ability to adapt to the context and needs of people; Take responsibility for the work you develop, meeting the established objectives and deadlines.; Demonstrate good professional work.; Adapt to new situations and contexts. Share information with the work team.; Participate and actively collaborate in the work team.; Show flexibility to understand changes.

Units of Learning Outcome 2 (ULO)	MF0846_3: UNIT OF COMPETENCE 2: Develop projects for solar thermal installations (240 horas); ; RP 1: Define the characteristics of the thermal installation, applying calculation procedures and established standards, to select the necessary equipment and elements, and their specifications.; RP 2: Produce reports, reports and manuals required by official regulatory bodies, to justify projects for solar thermal installations.; RP 3: Prepare general and detailed layout plans for solar thermal installations, based on the technical design specifications established for the development of the project, achieving the required quality and finish levels.; RP 4: Prepare budgets from the designs made, detailing the different items, for the development of solar thermal installation projects.; RP 5: Prepare the health and safety plan in the assembly of the solar thermal installation, using the project documentation and ensuring compliance with the applicable regulations, to avoid accidents and minimize risks.; RP 6: Carry out the administrative procedures required to obtain authorization for the solar thermal installation and to access possible subsidies.
Knowledge & skills	Skills and evaluation criteria; ; C1: Analyse the typologies of solar thermal installations, selecting those adapted to the construction characteristics, the energy needs of the user and the applicable regulations.; C2: Determine the elements that make up solar thermal installations, using the established average procedures, and complying with the applicable regulations.; C3: Draw, on the suitable support, the plans, operating principles, general diagrams and details that make up the graphic documentation of the installation project for the solar thermal installation.; ; C4: Prepare reports, budgets and the rest of the technical documentation of the project for the assembly, maintenance and use of the solar thermal installation.; C5: Prepare health and safety plans for the installation of solar thermal installations; C6: Prepare the necessary file documentation for administrative authorization and to obtain, where appropriate, the corresponding subsidies.; ; Other skills: ; ; Take responsibility for the work you develop and for meeting the objectives.; Demonstrate good professional work.

Units of Learning Outcome 3 (ULO)	MF0847_3: UNIT OF COMPETENCE 3: Organization and control of the installation of solar thermal installations (120 horas); ; RP 1: Plan the execution of a solar thermal installation, defining the work phases and interpreting the project or technical report, complying with the applicable regulations.; RP 2: Organize the phase of stakeout, planning and assembly of structures of the solar thermal installation, to follow the established schedule, controlling its execution and making the corresponding adaptations based on the possible contingencies that may arise.; RP 3: Organize the supply and supply of materials to the work according to procedures established in the company, controlling the process and complying with the applicable regulations.; RP 4: Organize the assembly phases of the solar thermal installation, to follow the established schedule, controlling its execution and making the corresponding adaptations based on the possible contingencies that may arise.; RP 5: Organize safety tests, operation and tuning of solar thermal installations, adjusting equipment and regulation and control elements, controlling the process to ensure the established operating conditions.; RP 6: Organize the health and safety plan in the assembly operations of solar thermal installations, controlling its execution to guarantee the integrity of people, the media and their environment, and complying with the applicable regulations.
Knowledge & skills	Skills and evaluation criteria; ; C1: Analyse the technical documentation of solar thermal installations, determining the activities and resources, for the organization of the assembly process.; C2: Develop supply programs for the assembly of solar thermal installations.; C3: Prepare work plans for the assembly of solar thermal installations according to the project and established work procedures.; C4: Justify the constructive solutions of the resistant structures necessary in the solar thermal installation and control the general assembly operations based on the technical documentation, complying with the applicable regulations.; C5: Control the general assembly operations based on the technical documentation, complying with the applicable regulations.; C6: Define the quality criteria in the assembly and commissioning operations of solar thermal installations based on the technical documentation, complying with the applicable regulations; ; Other skills: ; ; Take responsibility for the work you develop and for meeting the objectives. Show creativity in the development of the work you make.; Transmit information clearly, in an orderly, structured, clear and precise manner, respecting the channels established in the organization.; Show creativity in the development of the work you make.; Propose alternatives with the objective to improve results.

Units of Learning Outcome 4 (ULO)	MF0848_3: UNIT OF COMPETENCE 4: Organización y control del mantenimiento de instalaciones solares térmicas (90 horas); ; RP 1: Organize the maneuvers and adjustment operations in the solar thermal installations, controlling their execution, to optimize their operation.; RP 2: Develop maintenance plans for solar thermal installations, keeping them updated and improving them, for their application.; RP 3: Organize the processes and procedures of preventive and corrective maintenance of solar thermal installations, supervising them for their application.; RP 4: Develop the energy management program for solar thermal installations, controlling its application.; RP 5: Organize the rules and measures for the prevention of risks, safety, health and the environment in the maintenance of solar thermal installations, to control their application; RP 6: Control the documentation related to the processes of operation and maintenance of thermal solar energy installations, to supervise their activity.
Knowledge & skills	Skills and evaluation criteria; ; C1: Analyse the technical documentation of solar thermal installations determining the activities and resources to plan the maintenance process.; C2: Prepare the written procedures for the maintenance operations of thermal solar installations, determining the tasks, materials, means and criteria for the control of the execution.; C3: Apply programming techniques that optimize resources to develop maintenance intervention and monitoring programs.; C4: Control general maintenance operations in solar thermal installations based on technical documentation, applying standardized procedures, corresponding regulations and acting under safety regulations.; ; Other skills: ; ; Treat the client with courtesy, respect and discretion. ; Demonstrate interest and concern to satisfactorily meet customer needs. Demonstrate a certain degree of autonomy in the resolution of contingencies related to their activity.; Take responsibility for the work you develop and for meeting the objectives.

SPAIN - code:		S06
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	ENA358 3 Energy efficiency of Buildings	
EQF Level, if any	3	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	General competence ; Management of the efficient use of energy, evaluating the efficiency of energy and water installations in buildings, collaborating in the energy certification process of buildings, determining the feasibility of implementing solar installations, promoting the efficient use of energy and making proposals improvement, with the required quality, and complying with the applicable regulations.; ; Professional field ; Development of the professional activity in the production area dedicated to building energy efficiency, in public or private entities, companies of any size, both self-employed and employed, regardless of their legal form. It develops its activity depending, where appropriate, functionally and / or hierarchically on a superior. You can have staff under your charge occasionally, seasonally or on a permanent basis. In the development of professional activity, the principles of universal accessibility are applied in accordance with the applicable regulations.; ; www.incual.mecd.es ; www.cualifica2.es/cualificacion/ENA/Energia-y-agua	
TARGET GROUPS ADDRESSED*	• Potential applicants to: ; Promoter of energy efficiency programs. ; Building energy certification process assistant.; Energy managers.	
DIDACTIC METHOD (classes, workshops, internships)	Face-to-face classes in: • Classroom; • Classroom-workshop; • Practice workshop; • Laboratory; • Singular spaces	
DURATION OF COURSE	870 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Level 3; • Baccalaureate degree.; • Professional Certification of the same level; • Admission test to the Middle Superior Grade ; Training Cycle.; • Professional Certification of level 2 of the same professional training family.;	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	-	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	-	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	-Order PRE 1615-2015 about Qualifications updating of the ENA Family; -CTE, Technical Code for Building	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	MINISTRY OF EDUCATION AND PROFESIONAL TRAINING, INCUAL; www.incual.mecd.es	
SPONSORING INSTITUTION (keep track of the source of information)	• www.incual.mecd.es ; ; Proyectos y colaboraciones; Instituto Nacional de la Cualificaciones; Fondo Social Europeo; APRENDE a lo largo de la vida; Todo FP.es; SpainSkills; Refenet; Proyecto Europeo "Horizon 2020"; Correos (Agreement)	

Units of Learning Outcome 1 (ULO)	MF1194_3: UNIT OF COMPETENCE 1; Evaluation of the energy efficiency of building facilities 270 h); ; RP 1: Check the heat and cold generators, fans, circulators and pipe networks and distribution ducts to verify that they comply with the applicable regulations in relation to the energy efficiency of the installation.; RP 2: Check the control systems, remote management, measuring devices and energy recovery systems to verify that they comply with the applicable regulations in relation to the energy efficiency of the installation.; RP 3: Check, according to established procedures, the interior lighting and exterior lighting installations to determine that they comply with the energy efficiency requirements, in accordance with the applicable regulations.; RP 4: Check compliance with the requirements for the use of renewable energies and the limitation of the use of electrical energy in the energy installations of buildings, in accordance with the applicable regulations.; RP 5: Prepare reports with improvement proposals to increase the energy efficiency of the facilities, in accordance with the applicable regulations.; RP 6: Organize rules and measures for the prevention of risks, safety, health and; Environmental applicable in the inspection operations of the energy efficiency of facilities, supervising their execution.
Knowledge & skills	Skills and evaluation criteria; ; C1: Calculate the energy efficiency of heat and cold generators, fans, circulators and networks of pipes and distribution ducts, by analysing their constitution and operation, in accordance with the applicable regulations; C2: Analyse the operation of control systems, remote management, measuring devices and energy recovery systems, checking that they contribute to the energy efficiency of the installation in accordance with the applicable regulations.; C3: Calculate the energy efficiency of indoor and outdoor lighting installations and check that they comply with the energy efficiency requirements indicated in the applicable regulations.; C4: Determine the requirement for the use of renewable energy and the limitation of the use of electrical energy in thermal installations according to applicable regulations.; C5: Write reports and reports with proposals for the improvement of thermal installations from the point of view of improving efficiency and energy savings.; C6: Analyse the standards and measures for the prevention of risks, safety, health and the environment in the inspection operations of the energy efficiency of the facilities.; ; Other skills: Propose alternatives with the objective to improve results.; Show creativity in the development of the work you make.; Spend time and effort expanding knowledge and complementary information to use in your work.; Take responsibility for the work you develop and for meeting the objectives.; Demonstrate good professional work.; Finish the Work according to criteria of suitability, speed, economy and efficiency.

Units of Learning Outcome 2 (ULO)	MF1195_3: UNIT OF COMPETENCE 2; Collaborate in the process of energy certification of buildings; ; RP 1: Collaborate in verifying that the construction parameters of a building located in a specific climate zone comply with the applicable regulations to limit its energy demand, using the tools and computer applications approved for this purpose.; RP 2: Collaborate in the energy rating of buildings, in projects or constructed to determine their energy characteristics, according to the methodology established by the applicable regulations and using the computer applications approved for this purpose.; RP 3: Contribute to the preparation of documentation related to planning and administrative management in the energy certification process for buildings
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Knowledge & skills	Skills and evaluation criteria; ; C1: Analyse the parameters of the enclosures and interior partitions of the buildings and other construction characteristics, checking that they meet the conditions established for limiting the energy demand of the building.; C2: Apply the methodology established in the process of obtaining the energy rating of buildings.; C3: Use official or approved computer applications to calculate the limitation of the energy demand of buildings.; C4: Use official or approved computer applications for the building energy rating process.; C5: Prepare the documentation required to obtain, update and renew the energy certification.; Other skills: ; Adapt to the organization and its organizational and technological changes, as well as to new situations or contexts.; Respect the internal procedures and rules of the organization. Take responsibility for the work you develop and for meeting the objectives.; Communicate effectively with the right people at all times, respecting the channels established in the organization; Interpret and execute work instructions.; the channels established in the organization. Share information with the work team.
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Units of Learning Outcome 3 (ULO) Knowledge & skills	MF1196_3 UNIT OF COMPETENCE 3: Manage the efficient use of water in buildings; ; RP 1: Evaluate the indicator parameters of the water consumption of the receiving devices, determining the effectiveness of the control systems and other devices used for a rational use of water in buildings.; RP 2: Evaluate the different uses and consumptions of water in buildings, analyzing the adequacy of the characteristics of the facilities to the demands of users for the efficient use of water.; RP 3: Check that the periodic maintenance operations of the water installations have been carried out and recorded according to the applicable regulations and with the established energy efficiency level, for the efficient use of water.; RP 4: Propose saving alternatives, designing them for efficient use of water.
Units of Learning Outcome 4 (ULO)	MF1196_3 UNIDAD DE UNIT OF COMPETENCE 4: Determine the feasibility of solar installation projects; ; RP 1: Evaluate the energy needs and interests of the user, classifying them to make a decision on the type and characteristics of the most appropriate energy supply, complying with the applicable regulations.; RP 2: Determine the solar potential of an area for decision-making on the possibilities of applying solar energy, complying with the applicable regulations.; RP 3: Formalize proposals for solar installations responding to the energy needs and interests of the clients, to determine the option that optimizes the available resources.
Knowledge & skills	Skills and evaluation criteria; C1: Quantify the energy needs of different types of users, classifying and analyzing them to diagnose the possibility of carrying out a solar installation.; C2: Define the solar potential in a determined area for the realization of solar installations, using the established procedures and means, and complying with the applicable regulations.; C3: Prepare proposals for solar installations, aimed at customers, which include the characteristics of the installation and the analysis of the applicable regulatory and subsidy framework.; ; Other skills: ; Communicate effectively with customers.; Treat the client with courtesy, respect and discretion.; Demonstrate interest and concern to satisfactorily meet customer needs.; Have initiative to promote projects.; Participate and actively collaborate in the work team.; Ability to adapt to the context and needs of people. Skills and evaluation criteria; ; C1: Analyse the constitution and global operation of water facilities, determining compliance with applicable regulations and recommendations related to efficiency in consumption.; C2: Determine the operating parameters and water consumption of the existing receivers and control systems in water distribution networks, from an efficient point of view in the use of water.; C3: Analyse the adequacy of a facility to the demands and uses of users.; C4: Identify the different maintenance interventions for the building's hydraulic network and check that they are recorded in the use and maintenance manual, or, where appropriate, in the building book.; C5: Prepare reports and technical reports with proposals for the improvement of water installations from the point of view of efficiency and savings.; ; Other skills: ; Treat the client with courtesy, respect and discretion.; Demonstrate interest and concern to satisfactorily meet customer needs.; Transmit information clearly, in an orderly and structured way, clear and precise, respecting the channels established in the organization.; Propose alternatives with the objective to improve results.; Show creativity in the development of the work you make.; Spend time and effort expanding knowledge and complementary information to use in your work.
Units of Learning Outcome 5 (ULO)	MF1197_3 UNIT OF COMPETENCE 5: Promote efficient use of energy; ; RP 1: Collaborate in the determination of the necessary specifications to develop the information, training and dissemination actions, proposed in the energy efficiency plans, taking into account the needs of the recipients.; RP 2: Collaborate in the organization of information or training actions aimed at consumers, companies and organizations to promote the efficient use of energy.; RP 3: Develop information or training actions for consumers, organizations and professionals in accordance with the objectives pursued, the defined methodology and the established budget, to promote the efficient use of energy.; RP 4: Collaborate in the evaluation of information or training actions, using the techniques and instruments to determine the suitability of the same based on the objectives and expected results.
	Skills and evaluation criteria; ; C1: Analyze the information and dissemination actions proposed in the energy efficiency plans to determine the necessary specifications for their development.; C2: Program information or training actions for consumers, companies and organizations on applicable regulations on environmental efficiency and responsible consumption habits.; C3: Inform and train consumers, professionals, companies and organizations with the specifications, defined methodology and established budget.; C4: Design models and instruments for evaluating information or training actions for consumers or professionals related to efficiency in the use of energy.; ; Other skills: ; Treat the client with courtesy, respect and discretion.; Demonstrate interest and concern to satisfactorily meet customer needs.; Propose challenging objectives that suppose a level of performance and efficiency higher than previously achieved.; Adapt to new situations or contexts.; Communication skills, high level of oral and written expression and ability to attract attention.; Transmit information clearly, in an orderly, structured, clear and precise manner, respecting the channels established in the organization

SPAIN - code:		S07
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	ENA620_1 - Basic operations in the assembly and maintenance of renewable energy facilities	
EQF Level, if any	1	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	General competence; Installations workshop Perform basic operations in the assembly and maintenance of renewable energy installations, mainly solar thermal, photovoltaic and small-power wind power, following the established procedures and instructions from a higher-level technician and complying with the safety regulations for people, medium environment and facilities.; ; Professional field; Development o the professional activity in the areas or departments of production or maintenance of companies of any size, public and private, employed, related to the assembly, operation and maintenance of renewable energy facilities, mainly solar thermal, photovoltaic and wind, functionally and hierarchically dependent on a superior.; www.incual.mecd.es ; www.cualifica2.es/cualificacion/ENA/Energia-y-agua	
TARGET GROUPS ADDRESSED*	Potential applicants to:; Installation and maintenance assistant for solar thermal installations.; Assistant of assembly and maintenance of photovoltaic solar installations.; Installation and maintenance assistant of small wind power installations.	
DIDACTIC METHOD (classes, workshops, internships)	; Installations workshop	
DURATION OF COURSE	540 horas	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Level 1; It has no training or professional requirements, that is, it is not necessary to have studied or have work experience to do it	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	-	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	-	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	-R. Decree 617-2013 (Family Certificate ENA); -Certificate Annex ENA E0111_1; -CTE, Technical Code for Building	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	MINISTRY OF EDUCATION AND PROFESIONAL TRAINING, INCUAL ; www.incual.mecd.es	
SPONSORING INSTITUTION (keep track of the source of information)	www.incual.mecd.es; ; Projects and collaborations; Instituto Nacional de la Cualificaciones; Fondo Social Europeo; APRENDE a lo largo de la vida; Todo FP.es; SpainSkills; Refenet; Proyecto Europeo "Horizon 2020"; Correos (Agreement)	

Units of Learning Outcome 1 (ULO)	MF0620_1: UNIT OF COMPETENCE 1; Carry out basic machining operations. (transversal module), (90 horas); ; RP1: Establish the machining process in terms of phases and cutting parameters, ensuring the viability of machining and achieving the quality of the process; RP2: Carry out the treatment of the pieces to proceed to their machining, from simple drawings.; RP3: Select the tools and tools necessary for machining, depending on the type of part and the machining process.; RP4: Execute welded joints that do not require great skill, applying the necessary techniques and following the technical specifications.; RP5: Carry out all machining operations in accordance with the occupational risk prevention regulations.
Knowledge & skills	Skills and evaluation criteria; ; C1: Identify the elements that make up solar thermal installations. Describing its main features and functionalities.; C2: Apply the techniques for mounting supports, anchors and collectors of solar thermal installations based on technical documentation, using the appropriate tools, equipment and materials and acting under safety regulations.; C3: Operate with machining tools and welding equipment to make connections of pipes and components of solar thermal installations.; C4: Apply assembly techniques for electrical equipment and auxiliary elements of solar thermal installations based on technical documentation, using suitable tools, equipment and materials and acting under safety regulations.

Units of Learning Outcome 2 (ULO)	MF2050_1: UNIT OF COMPETENCE 1; Basic operations in the assembly and maintenance of solar thermal installations. (150 horas); ; RP1: Perform basic operations in the assembly of supports, anchors and collectors of solar thermal installations in accordance with the instructions received and the company's occupational and environmental risk prevention plan, and under supervision.; RP2: Perform mechanical and welded joints in the process of assembling hydraulic pipes and components of solar thermal installations in accordance with the instructions received and the company's occupational and environmental risk prevention plan, and under supervision.; RP3: Perform basic operations in the assembly of electrical equipment and auxiliary elements of solar thermal installations in accordance with the instructions received and the company's occupational and environmental risk prevention plan, and under supervision.; RP4: Carry out basic operations in the commissioning and operation of solar thermal installations in the safety conditions established in accordance with the instructions received and the company's occupational and environmental risk prevention plan, and under supervision.; RP5: Perform basic operations in the maintenance of solar thermal installations following established procedures and instructions received and the company's occupational and environmental risk prevention plan.;
Knowledge & skills	Skills and evaluation criteria; ; C1: Carry out commissioning and operation of solar thermal installations based on technical documentation and acting under safety regulations.; C2: Apply maintenance techniques for solar thermal installations following the procedures and specifications of the installation

Units of Learning Outcome 3 (ULO)	MF2051_1: UNIT OF COMPETENCE 3; Basic operations in the assembly and maintenance of photovoltaic solar installations. (90 horas); ; RP1: Perform basic operations in the assembly of supports, structures and panels of photovoltaic solar installations in accordance with the instructions received and the company's occupational and environmental risk prevention plan, and under supervision.; RP2: Carry out basic operations in the assembly of electrical equipment and components of photovoltaic solar installations in accordance with the instructions received and the company's occupational and environmental risk prevention plan, and under supervision.; RP3: Carry out basic operations in the maintenance of photovoltaic solar installations following established procedures and instructions received and the company's occupational and environmental risk prevention plan, under supervision.
Knowledge & skills	Skills and evaluation criteria; ; C1: Identify the elements that make up photovoltaic solar installations, describing their main characteristics and functionalities.; C2: Apply techniques for mounting supports, structures and panels of photovoltaic solar installations based on technical documentation, using the appropriate tools, equipment and materials and acting under safety regulations.; C3: Apply assembly techniques for electrical equipment and components of photovoltaic solar installations based on technical documentation, using the appropriate tools, equipment and materials and acting under safety regulations.; C4: Apply maintenance techniques for photovoltaic solar installations following the procedures and specifications of the installation's maintenance plan.
Units of Learning Outcome 4 (ULO)	MF2052_1: UNIT OF COMPETENCE 4; Basic operations in the assembly and maintenance of small wind power installations. (90 horas); ; RP1: Carry out basic operations in the assembly of supports, structures, masts and wind turbines of small power wind installations in accordance with the instructions received and the company's occupational and environmental risk prevention plan, and under supervision.; RP2: Carry out basic operations in the assembly of electrical equipment and components of small power wind installations in accordance with the instructions received and the company's occupational and environmental risk prevention plan, and under supervision.; RP3: Carry out basic operations in the maintenance of small power wind installations following established procedures and instructions received and the company's occupational and environmental risk prevention plan, under supervision.
Knowledge & skills	Skills and evaluation criteria; ; C1: Identify the elements that make up small-power wind installations, describing their main characteristics and functionalities.; C2: Apply mounting techniques for supports, structures, masts and wind turbines of wind installations based on technical documentation, using the appropriate tools, equipment and materials and acting under safety regulations.; C3: Apply assembly techniques for the electrical equipment and components of wind power facilities based on technical documentation, using the appropriate tools, equipment and materials and acting under safety standards.; C4: Apply maintenance techniques in small wind installations following: the procedures and specifications of the facility's maintenance plan.
Units of Learning Outcome 5 (ULO)	MP0469: Non-labor professional practice module of basic operations in the assembly and maintenance of
Knowledge & skills	;

SPAIN - code:		S08
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	LEED Green Associate; LEED AP BD +C; LEED AP O +M ; LEED AP ID + C ; LEED AP HOMES ; LEED AP ND	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Leadership in Energy and Environmental Design (LEED®) is an international standard and evaluation system developed by the "U.S. Green Building Council" in the late 90s in the US to promote the development of buildings based on sustainable and high-efficiency criteria.; ; LEED® is characterized by providing an evaluation of the sustainability of the building assessing its impact in 5 main areas: sustainable location, protection and water efficiency, energy efficiency and renewable energy, conservation of materials and natural resources and quality of the indoor environment.; ; Projects are scored against a set of standard credits and the sum of the points earned determines the level of certification: Certified, Silver, Gold, Platinum.; ; LEED certifiers do not exist, the only one that certifies is the USGBC through LEED-ONLINE.; ; There are different LEED credentials that are obtained from specific training. This training assesses the ability of professionals to understand the LEED rating system and to facilitate the certification process. There are two levels of credentials.; • LEED Green associate.; • LEED AP with specialty.; ; www.usgbc.org/education ; www.2.gbce.es ; ; www.spaingbc.org ; www.gestor-energetico.com ; ; www.educaweb.comcurso/leed ; www.spaingbc.org ; www.indracompany.com	
TARGET GROUPS ADDRESSED*	Industry professionals seeking to increase their knowledge of sustainable construction strategies, benefits, and resources of the LEED-NC® Rating System for New Construction.; • Architects; • Engineers; • Designers; • Promoters; • Consultants; • Contractors; • Owners; • Manufacturers	
DIDACTIC METHOD (classes, workshops, internships)	LEED certifiers do not exist, the only one that certifies is the USGBC through LEED-ONLINE.; ; There are different LEED credentials that are obtained from specific training. This training assesses the ability of professionals to understand the LEED rating system and to facilitate the certification process. The system establishes two levels of credentials.; • LEED Green associate.; • LEED AP with specialty.; ; Courses.; 1. LEEDv4 GREEN ASSOCIATE.; 2. LEEDv4 AP WITH SPECIALITY EXAMS; 2.1 LEED AP BD +C ; 2.2 LEED AP O +M; 2.3 LEED AP ID + C; 2.4 LEED AP HOMES ; 2.5 LEED AP ND	
DURATION OF COURSE	1. LEED GREEN ASSOCIATE 30-60 hours; (depending on the offer); 2. LEED AP WITH SPECIALITY EXAMS; 2.1 LEED AP BD +C 60 hours; 2.2 LEED AP O +M 60 hours; 2.3 LEED AP ID + C 60 hours; 2.4 LEED AP HOMES 60 hours; 2.5 LEED AP ND 60 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Prerequisites/eligibility requirements LEED Green associate: None; ; Prerequisites/eligibility requirements LEED AP with specialty: Must hold a current LEED Green Associate credential and be 18 years of age or older. Experience working on LEED-registered projects is strongly recommended.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	Credential maintenance, (CE hours); LEED Green associate.; 15 hours of continuous training within two years after obtaining the credential.; LEED AP with specialty.; 30 hours of continuous training within two years after obtaining the credential.; (see CMP i Education @ USGBC Guide);	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	List of 221 LEED AP accredited in the spaingbc.org WEB.	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	www.usgbc.org/education ; www.spaingbc.org ; Official training providers in Spain; www.gbce.es ; www.2.gbce.es	
SPONSORING INSTITUTION (keep track of the source of information)	; ; See the members of the SpainGBC-CCVE web	

Units of Learning Outcome 1 (ULO)	1. LEED Green Associate.; LEED Green Associate exam: The LEED Green Associate Exam, a 100 multiple-choice questions, is designed to test the general knowledge of green building practices and how to support other professionals working on LEED projects.; ; The primary sources for the development of the LEED professional exams are the LEED rating systems.; ; Knowledge Domains; LEED Process (16 questions); Integrative Strategies (8 questions); Location and Transportation (7 questions); Sustainable Sites (7 questions); Water Efficiency (9 questions); Energy and Atmosphere (10 questions); Materials and Resources (9 questions); Indoor Environmental Quality (8 questions); Project Surroundings and Public Outreach (11 questions);
Knowledge & skills	Knowledge Domains reflect the rating systems' credit categories and what one needs to know. These include concepts such as LEED Process, Integrative Strategies, LEED credit categories, and Project Surroundings and Public Outreach.

Units of Learning Outcome 2 (ULO)	1. LEED AP Building Design + Construction (LEED AP BD +C); The exam, Combined exam: 100 multiple-choice questions per section / Specialty only: 100 multiple-choice questions, is based on the following text specifications and references; ; Task Domains; •LEED Project and Team Coordination (22%); •LEED Certification Process (32%); •Analyses Required for LEED Credits (32%); •Advocacy and Education for Adoption for LEED Rating System (14%); ; Knowledge Domains, (see LEED Green Associate exam domains)
Knowledge & skills	The LEED AP BD+C credential suits professionals with expertise in the design and construction phases of green buildings, serving the commercial, residential, education and healthcare sectors.

Units of Learning Outcome 3 (ULO)	2. LEED AP Operations + Maintenance (LEED AP O +M); The combined exam, a 100 multiple-choice questions per section / Specialty 100 multiple-choice questions, is based on the following text specifications and references; ; Task Domains: •LEED Project and Team Coordination (24%); •LEED Certification Process (28%); •Analyses Required for LEED Credits (37%); •Advocacy and Education for Adoption for LEED Rating System (11%); ; Knowledge Domains, (see LEED AP ID + C)
Knowledge & skills	The LEED AP O+M credential distinguishes professionals implementing sustainable practices, improving performance, heightening efficiency and reducing environmental impact in existing buildings through enhanced operations and maintenance

Units of Learning Outcome 4 (ULO)	3. LEED AP Interior Design + Construction (LEED AP ID + C) ; The exam, a 100 multiple-choice questions per section / Specialty 100 multiple-choice questions, is based on the following text specifications and references.; ; Task Domains: •LEED Project and Team Coordination (25%); •LEED Certification Process (25%); •Analyses Required for LEED Credits (35%); •Advocacy and Education for Adoption for LEED Rating System (15%); ; Knowledge Domains: •LEED Process (11 questions); •Integrative Strategies (8 questions); •Location and Transportation (8 questions); •Water Efficiency (10 questions); •Energy and Atmosphere (15 questions);
Knowledge & skills	The LEED AP ID+C credential serves participants in the design, construction and improvement of commercial interiors and tenant spaces that offer a healthy, sustainable and productive work environment.

Units of Learning Outcome 5 (ULO)	4. LEED AP HOMES ; The exam, a 100 multiple-choice questions per section / Specialty 100 multiple-choice questions, is based on the following text specifications and references.; ; View references; •Green Building Incentive Strategies; •Guide to LEED Certification: Commercial; •Foundations of LEED; •LEED v4 for HOMES Design and Construction Checklist; •LEED Addenda (Corrections + Interpretations); •LEED Online: Register a Project; •LEED Certification Fees; •Rating System Selection Guidance; •Addenda Database
Knowledge & skills	The LEED AP Homes exam tests the knowledge and skills necessary to participate in the design process, support and encourage integrated design and streamline the application and certification process.

Units of Learning Outcome 6 (ULO)	5. LEED AP Neighborhood Development (LEED AP ND) ; The exam, a 100 multiple-choice questions per section / Specialty 100 multiple-choice questions, is based on the following text specifications and references.; ; Task Domains: •LEED Project and Team Coordination (30%); •LEED Certification Process (30%); •Analysis Required for LEED Credits (30%); •Advocacy and Education for Adoption for LEED Rating Systems (10%); ; Knowledge Domains: •LEED Process (13 Questions); •Smart Location & Linkage (21 Questions); •Neighborhood Pattern & Design (23 Questions); •Green Infrastructure & Buildings (21 Questions); •Project Surroundings and Public Outreach (7 Questions)
Knowledge & skills	The LEED AP ND credential applies to individuals participating in the planning, design and development of walkable, neighborhoods and communities

SPAIN - code:		S09
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Accredited evaluators, EA VERDE	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	VERDE® is a methodology for the environmental evaluation and certification of buildings developed by the GBC Spain Association, based on the formulation of selected criteria and accepted rules to define the limits and requirements necessary for a building to obtain the GBC Spain –VERDE Certification. ®.; The evaluation system is based on a performance method in accordance with the philosophy of the Technical Building Code and the European Directives. At the base are the principles of bio-architecture and the construction of the building respecting the environment, compatible with the environment and with high levels of comfort and quality of life for users.; ; The evaluation criteria are grouped into different thematic areas: site selection, location project and planning, quality of the interior space, energy and atmosphere, quality of service, natural resources and socio- economic impact.; ; The system has different tools for designers to introduce measures depending on the context in which they intervene, according to the characteristics of the projects.; ; Residential GREEN Guide v1.0; Equipment GREEN Guide v1.0; DU. Urban developments GREEN GUIDE ; ; www2.gbce.es/pagina/formacion	
TARGET GROUPS ADDRESSED*	Institutions; - Academic institutions; - Public institutions, government authorities; - Research centres; - Professional associations; - Business associations; - Other entities; ; Professionals, experts, specialists; - Professional societies; - Individual professions; ; Enterprises and companies; - Manufacturing and supplier companies; - Consulting and engineering companies; -Promotors and executing companies; - Supply and management companies; - Supportive companies	
DIDACTIC METHOD (classes, workshops, internships)	Specific preparation on-line and face-to-face courses for the accreditation of evaluators carried out by GBE Spain. ; There are three steps in order to achieve the credentials.; ; 1. Theoretical course VERDE ; Specialist in environmental evaluation of buildings GREEN OMEGA GBCE.; ; 2. Theoretical test; ; GREEN OMEGA GBCE.; ;	
DURATION OF COURSE	1. Theoretical course VERDE: 30 hours; 2. Theoretical test: 20 hours ; 3. Practical course EA VERDE: 250 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Documentary accreditation of recognized university degree of intermediate or higher degree related to construction and / or environmental management.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	1. At least have carried out a complete evaluation of a building in the last 3 years or;; 2. Pass a theoretical knowledge update test.	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	List of 192 accredited evaluators on the GBCE WEB	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	Technical Building Code ; European Directives	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	GBC España, https://gbce.es	
SPONSORING INSTITUTION (keep track of the source of information)	Saint-Gobain www.saint-gobain.es (see GBCE web); ; ROCKWOOL ; Danosa; KNAUF; SILKA; MAPEI ; H.A.U.S; KÖMMERLING	

Units of Learning Outcome 1 (ULO)	1. Theoretical course VERDE ; Specialist in environmental evaluation of buildings GREEN OMEGA GBCE.; ; Module 0 ; - Introduction to the course methodology; Module 1 ; - Environmental certification of buildings; - Certification process with GREEN; - The GREEN evaluation methodology; Module 2 ; - Plot and location; - Energy and atmosphere; Module 3 ; - Natural resources; water and materials; Module 4 ; - Quality of service; - Social and economic aspects; - Design quality; - Innovation
Knowledge & skills	The VERDE GBCE Omega tool allows the environmental assessment of residential, tertiary and equipment buildings both in new construction and in rehabilitation actions.; The course allows to obtain the necessary knowledge about the VERDE GBCE Omega methodology to be able to carry out the evaluation of a building and put into practice the knowledge acquired to develop a project of a building with sustainability criteria.

Units of Learning Outcome 2 (ULO)	2. Theoretical test VERDE OMEGA GBCE.; The theoretical test is necessary if you want to go to the practical course that gives the possibility of being accredited as a GREEN evaluator.; ; The student must register for it and will have, during the fifteen days prior to the test, a forum with direct communication with the teachers and the rest of the students to raise any doubts that may arise.;
Knowledge & skills	This theoretical test is based on the knowledge acquired in the GREEN Omega GBCE course

Units of Learning Outcome 3 (ULO)	3. Practical course EA VERDE: GREEN OMEGA GBCE accredited evaluator; ; To access this course, it is essential to have completed the VERDE building environmental assessment specialist course and have passed the theoretical test. Compliance with the training requirements of the VERDE evaluator accreditation will also be requested.; ; This course developed over 10 weeks is structured around 8 practices that evaluate the main VERDE criteria. A real building is proposed that allows approaching the methodology in a realistic and functional way for the student's professional activity.; ; At the end of the evaluation of the building, a final delivery will be made with all the criteria already corrected and, if it is satisfactorily passed, the student may choose to be accredited as a VERDE evaluator.
Knowledge & skills	With this course, the title of VERDE GBCE Accredited Evaluator is obtained. The title allows making evaluations of buildings and request the certification from GBCE, the accredited evaluators, EA VERDE, obtain the necessary knowledge to evaluate a building with the rigor required by GBCE and to prepare the supporting documents that will endorse the evaluation carried out for a certification.

SPAIN - code:		S10
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	BRE-accredited assessors;	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	Building Research Establishment Environmental Assessment Method (BREEAM®) is a system for assessing the sustainability of construction projects developed by the BRE (Building Research Establishment) in the early 90's in the UK based on the following 9 categories: management, health and wellness, energy, transport, materials, waste, water, land use and ecology, and pollution.; The results are translated into an overall score as follows: Pass, Good, Very Good, Excellent and Outstanding. One particularity of the method is that to carry out the certification process, the use of BRE-accredited assessors is an essential requirement.; www.breeam.es/formacion	
TARGET GROUPS ADDRESSED*	Institutions; Academic institutions; Public institutions, government authorities.; Property agents, to promote the credentials and environmental benefits of a building to potential buyers and tenants.; Planning project designers use it as a tool to improve the functioning of their buildings and to expand their knowledge and experiences in all aspects of environmental sustainability.; Enterprises and companies use it to reduce operating expenses, measure and improve the performance of buildings, develop action plans and follow-up execution reports of single buildings or of its real estate assets.	
DIDACTIC METHOD (classes, workshops, internships)	Specific preparation face-to-face and on-line courses for the accreditation of evaluators carried out by BREEAM and the recognized training entities ITeC and LKS.; Courses: 1. BREEAM Associate Course in Sustainable Construction, (introductory course); 2. BREEAM New Construction Course; 3. BREEAM Housing	
DURATION OF COURSE	1. BREEAM Associate Course in Sustainable Construction, Introductory Course. 8 hours; 2. BREEAM New Construction Course 46 hours; 3. BREEAM Housing 46 hours; 4. BREEAM Town planning 30 hours; 5. BREEAM Course in Use 31 hours;	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	To be an advisor, it is necessary to pass a Certification Process in accordance with the requirements of the International Standard UNE-EN ISO / IEC 17024 for the certification of people and endorsed by ENAC.; You must pass the training course in the Scheme in which you want to be certified as an Advisor (Urban Planning, New Construction, Housing or In Use) and obtain a minimum of 15 points from the following list: Being a licensed Advisor in another scheme or in another country.; Be a university graduate in technical or environmental branches; Have a master's degree in sustainability and Construction.; Have other accredited training in sustainability or sustainable construction.; Years of experience in the field of construction, being necessary to prove experience in any of the following fields: Participation in architecture projects (design or construction); Work experience in leadership or management positions; Experience in sustainability in construction (development of studies to reduce the consumption of water, reduction of acoustic levels, implementation of the UNE-EN ISO 14001 standard in works or buildings; cost-benefit analysis or evaluation of environmental measures in construction, etc.;	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	Annual renewal of knowledge accrediting to the certifying body a training of at least 5 hours in the field of sustainability (attendance at conferences or congresses, courses, etc.)	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	List of 556 accredited evaluators in the BREEAM WEB	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	Technical Building Code ; European Directives	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	BRE Global Ltd (BRE) and; the Technological Institute of Galicia (ITG); www.breeam.es	
SPONSORING INSTITUTION (keep track of the source of information)	; ACR Grupo www.acr.es ; airlite www.airlite.com ; AMENABAR www.amenabarpromociones.com ; Exeleria www.exeleria.com ; Ingennus www.ingennus.com ; Inter www.interingenieria.com ; Mace www.macegroup.com ; Neiror www.neirorhomes.com ; Neinver www.nneinver.com ; Savener www.savener.es ; Siber www.siberzone.es ; Summeria	

Units of Learning Outcome 1 (ULO)	1. BREEAM ASSOCIATE COURSE IN SUSTAINABLE CONSTRUCTION, (introductory course) ; - Introduction to sustainability and sustainable construction practices; - Introduction to BREEAM (since 1990) and BREEAM in Spain (since 2010); - The value of certification and its principles; - The role of the Advisor in the evaluation process; - Certification schemes (Urbanism, New Construction, Housing, In Use); - Carry out an evaluation and revision exercise; - The evaluation process and quality assurance; - Certification process for unique buildings (BREEAM Custom); - Test exam of 10 questions and Review of the exam.
Knowledge & skills	Training aimed at professionals committed to sustainable construction and who want to get started in the key concepts of this methodology.; The course is aimed at technicians in architectural and engineering studies, public administrations, developers, builders, real estate managers, etc. who need to know the keys to a methodology born in the United Kingdom in 1990 and adapted to the language, regulations and constructive practice of Spain in 2010.; This recognition allows you to receive a diploma, appear on the official website list and access the reduced training of New Construction and Housing.

Units of Learning Outcome 2 (ULO)	2. BREEAM NEW CONSTRUCTION COURSE; BREEAM® ES New Construction is the evolution of the old "BREEAM® ES Commercial" scheme, which already made it possible to evaluate and certify the sustainability of the new work for offices, industry and commerce. Now, it expands its applicability to health, educational, sports, cultural, hotel, recreational, judicial, etc. buildings.; ; The certification method is based on the awarding of points that are grouped into 10 Categories, where the different available Requirements that can be met according to the strategy followed in each building are framed.; Analysis categories;; Management; Health & Wellness; Energy; Transport; Water; Materials; Waste; Land Use and Ecology; Pollution and Innovation;; On-Line Training; Module 1; General training on the concept of sustainable construction, on the origin, objectives and operation of the BREEAM® methodology and on its evaluation and certification process.; Passing this module allows the student to obtain the status of "BREEAM® Associate" (official recognition to professionals who pass this introductory module and master the basic concepts of the certification system).; Examination of the Module; Modules 2, 3, 4; Specific training on the technical requirements of the methodology;; Face-to-face training; Day 1, Review of the knowledge acquired in the online part.; Analysis of the evaluation process. Guidelines for Writing Assessment Reports. Quality guarantee.; Day 2 Review of the technical requirements in each category of the methodology. Relationship between the different certification schemes. Practical question and answer session.
Knowledge & skills	Training aimed at professionals committed to sustainable construction: technicians in architectural and engineering studies, public administrations, developers, builders, real estate managers, etc.

Units of Learning Outcome 3 (ULO)	3. BREEAM HOUSING ; BREEAM® ES Housing is the sustainability assessment and certification system applicable to new or refurbished or renovated residential buildings, including single-family homes and block of flats. It is applicable to both new construction and rehabilitation works of already built buildings, both in the project phase and in the post-construction phase.; ; The certification method is based on the awarding of points that are grouped into 10 Categories, where the different available Requirements that can be met according to the strategy followed in each building are framed.; Analysis categories:: Management; Health & Wellness; Energy; Transport; Water; Materials; Waste; Land Use and Ecology; Pollution and Innovation; ; Course; On-Line Training; Module 1; General training on the concept of sustainable construction, on the origin, objectives and operation of the BREEAM® methodology and on its evaluation and certification process.; Passing this module allows the student to obtain the status of "BREEAM® Associate" (official recognition to professionals who pass this introductory module and master the basic concepts of the certification system).; Examination of the Module; Modules 2, 3, 4; Specific training on the technical requirements of the methodology; ; Face-to-face training; Day 1, Review of the knowledge acquired in the online part.; Analysis of the evaluation process. Guidelines for Writing Assessment Reports. Quality guarantee.; Day 2 Review of the technical requirements in each category of the methodology. Relationship between the different certification schemes. Practical question and answer session.
Knowledge & skills	Training aimed at professionals committed to sustainable construction: technicians in architectural and engineering studies, public administrations, developers, builders, real estate managers, etc.
Units of Learning Outcome 4 (ULO)	4. BREEAM TOWN PLANNING ; BREEAM® ES Town Planning aims to stimulate the demand for more sustainable urbanism and communities, providing a comprehensive environmental sustainability certification internationally proven.; ; BREEAM® ES Town Planning considers eight categories to evaluate and certify the sustainability of each urbanization project, each of these categories is made up of a certain number of requirements that can be consulted in a Technical manual.; ; The adaptation of the methodology to the language, regulations and reality of the construction process in Spain has been carried out based on the Manual BREEAM for Communities and the categories of analysis established are:: Climate and energy; Community; Design of the place; Ecology; Transport; Means; Economy; Buildings
Knowledge & skills	Training aimed at professionals with expertise in sustainable town planning and architectural and engineering studies, also public administrations, developers, builders, real estate managers.
Units of Learning Outcome 5 (ULO)	5. BREEAM COURSE IN USE ; BREEAM® ES In Use is the sustainability assessment and certification scheme applicable to existing buildings for non-residential use and at least two years old.; ; The certification method is based on the awarding of points according to the degree of compliance with the requirements established in each of the 10 categories evaluated (see Housing / New Construction categories) based on the evidence provided by the BREEAM® Assessor.; ; On-Line Training; Divided into two modules, it includes the creation of a pre-course exercise book to be corrected during face-to-face training.; This training is a prerequisite and indispensable in order to access the face-to-face training.; ; Face-to-face training; Carry out a face-to-face review of the most important points of this certification scheme.
Knowledge & skills	Training aimed at professionals committed to sustainable construction: technicians in architectural and engineering studies, public administrations, developers, builders, real estate managers, etc.

SPAIN - code: 	S11
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	WELL AP (Accredited Professional)
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The WELL certification, the first to be exclusively focused on the health and comfort of users, is the most prestigious system in the world with regard to the health, comfort and well-being of people who visit, work or live in buildings.; This certification is based on performance and not on prescription and is one of the building certification systems and works from a dynamic scoring system for buildings and communities that allows to identify, measure and monitor the characteristics of the built spaces that impact occupants' health and well-being; ; WELL v2 includes 10 CONCEPTS; air, water, food, light, movement, thermal comfort, sound, materials, mind and community.; Each concept includes preconditions and characteristics. The "preconditions" are mandatory to achieve the WELL certification. The "features" provide points.; ; The Technological Institute of Galicia (ITG) is the partner of the International WELL Building Institute™ (IWBI™) in Spain. As a local partner of the IWBI in Spain, ITG supports health and well-being through better buildings and promoting the adoption of the WELL Building Standard™ (WELL™) and develops an educational program in Spain with the aim of educating and training in the WELL Building Standard™, and preparing professionals for the exam that accredits them as WELL AP™ (Accredited Professional). ; ; Official training providers in Spain: www.wellservices.itg.es/cursos/
TARGET GROUPS ADDRESSED*	Focus on different profiles of professionals, since the contents are transversal and interdisciplinary.; ; • Architecture and engineering studies; • Developers and Builders • Real Estate Investors; • Public administrations; • Real estate consultants and appraisers; • Wealth Managers and Facility Managers; • CSR teachers and professionals; • Independent professionals; • Students; • HR staff or people management
DIDACTIC METHOD (classes, workshops, internships)	The building certification / verification processes are carried out by professionals accredited by the GBCI and called Performance Testing Agent (PTA). ITG is the ONLY Performance Testing Organization (PTO) in Spain.; ; The training courses conducted by local partner of the IWBI in Spain, ITG, are aimed at accrediting WELL AP™ (Accredited Professional); ; COURSES, (Face-to-face/on-line ones); ; 1. INTRODUCTORY COURSE TO WELL; 2. OFFICIAL COURSE WELL AP EXAM PREP ; + review of the WELL AP Candidate Handbook, WELL Certification Guidebook...; ; WELL AP (Accredited Professional), as a consultant, will be the primary source of knowledge to develop real estate projects that generate well-being and will define the strategies to follow, the technical requirements as well as recommendations on specific products and materials, they will also work with the project team to define the objective of the certification and to implement the necessary measures for that purpose.; ; WELL AP will be the interlocutor of the different actors of the project and will guarantee that the objectives are met. The process will span from the completion of the project to the end of the construction phase.
DURATION OF COURSE	1. INTRODUCTORY COURSE TO WELL; Face-to-face 6h; On line 9h; 2. OFFICIAL COURSE WELL AP EXAM PREP ; Face-to-face 16h; On line 21h
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	To pass the AP EXAM; Be 18 years of age or older; Valid unexpired official ID presented at Prometric Test Centre.
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	• Credential maintenance ; Earn minimum number of continuing education (CE) hours every two years; WELL Aps required to have 30 CE hours, 6 hours must be WELL-specific CE hours ; Payment of a biannual fee of 90-100 dollars
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	The Technological Institute of Galicia (ITG), partner of the International WELL Building Institute™ (IWBI™) in Spain.; www.wellservices.itg.es
SPONSORING INSTITUTION (keep track of the source of information)	; ; KNAUF INSULATION www.knaufinsulation.es; LLEDO www.lledogruppo.com; SIBER www.siberzone.es; ECOPHON www.ecophon.com;

Units of Learning Outcome 1 (ULO)	1. INTRODUCTORY COURSE TO WELL ; ; The goal of the Introduction to WELL course is to deepen your understanding of the standard. Attendees will be able to know in depth the benefits of the WELL certification, its methodology, the applicable measures and the certification process.; ; Course contents, (Online and face-to-face mode); ; BLOCK 1. WELL 101, INTRODUCTION TO WELLv2; Part 1: To be WELL: an introduction; • Factors that affect health and well-being.; • The importance of the physical environment in the health and well-being of people.; Part 2: Buildings as preventive care.; • The origin and evolution of the WELL Building Standard.; • Basis of operation.; • WELL AP.; • Market situation.; Part 3: The 10 WELL Concepts v2.; • Introduction to the 10 WELL concepts: Air, Water, Food, Lighting, Movement, Thermal Comfort, Sound, Materials, Mind and community. identification of the problem, the impact and the measures that can be carried out.; Part 4: The Value of WELL; • The importance of health and wellness measures and WELL certification from a market point of view.; • Benefits of WELL in workspaces.; • WELL benefits in residential spaces.; ; BLOCK 2. WELLv2 CERTIFICATION PROCESS; Part 1: WELL certification process; • Actors involved.; • Use of the WELL online platform.; • Phase 1: project evaluation. Record and scorecard.; • Phase 2: implementation of the measures and sending of documentation.; • Phase 3: WELL Review, verification and obtaining the certification.; • Phase 4: monitoring and recertification.; • Success stories.; Part 2: Alternative adherence paths; • Functioning of the tool that allows adapting the requirements of the different features to specific cases of the project.; Part 3: Equivalences; • Functioning of the tool that allows adapting the applicable regulations to local regulations.; Part 4: Crosswalks; • Functioning of the tool that facilitates the double certification process: WELL + sustainability.; Part 4: Innovations; • The role of innovative measures.; ; BLOCK 3 THE FEATURES IN WELLv2; Part 1: WELL is holistic; • Explanation of the type of measures that exist in Well: some affect the design of the building and others to use policies.; Part 2: Performance; • WELL performs on-site performance checks. This process is called "performance verification" and it is the way in which WELL guarantees compliance with all measures.; Part 3: WELL v2 Features; • Explanation of a part of the WELL features. All the prerequisites of the standard and the main optimizations are detailed.; ; BLOCK 4 CASE STUDY
Knowledge & skills	No previous knowledge is necessary in the WELL certification; Focus on different profiles of professionals, since the contents are transversal and interdisciplinary.

Units of Learning Outcome 2 (ULO)	2. OFFICIAL COURSE WELL AP EXAM PREP ; ; The official WELL AP EXAM PREP course prepares for the official WELL AP exam with guarantee. It is recommended to have basic previous knowledge about the WELL certification.; ; The course provides a detailed approach and an effective study of WELL concepts and the content that is taught promotes the student's mastery of the WELL certification, its seven concepts, the 105 features and their requirements, and the certification process.; ; Course contents, (Online and face-to-face mode); ; BLOCK 1. INTRODUCTION; • WELL AP Exam: requirements and maintenance.; • Introduction to the WELL Building Standard.; • WELL Certification Process; ; BLOCK 2. Prerequisites, concept of air; BLOCK 3. Air concept optimizations; BLOCK 4. Water concept; BLOCK 5. Food concept; BLOCK 6. Lighting concept; BLOCK 7. Fitness concept; BLOCK 8. Comfort concept; BLOCK 9. Mind concept; BLOCK 10 Practical cases
Knowledge & skills	The WELL AP Exam Prep course is aimed at all those who want to take a step forward in their career and join the WELL community as a WELL AP (Accredited Professional).; ; Training for jobs of: • WELL AP; • WELL Consultant; • Specialist in sustainability and wellbeing; • Sustainable and healthy architecture; • Air quality specialist; • Specialist in healthy building management

6 ANNEX – OTHER PROFESSIONAL QUALIFICATIONS

OTHER - code:	 001
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	BDM Accompagnateur (BDM Attendant)
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	BDM Accompagnateur is a sustainable construction professional; he has a preponderant role to build better. He joins the project manager and the project management team from the first sketches of the project and accompanies them until the building operation. He is able to assess the sustainability level of buildings through the application of the Démarche BDM.; Bâtiments Durables Méditerranéens has developed the BDM Approach: an educational support and assessment tool on the environmental, social and economic aspects of the building. The BDM approach is an evaluation method of building project and skill for all the stakeholders involved in a construction project. Démarche BDM is a participatory process that benefits from collective intelligence. It is adapted to the residential building, tertiary and schools. The BDM approach also has the particularity of being adapted to Mediterranean climates, Mediterranean hinterland, medium mountain and high mountain.
TARGET GROUPS ADDRESSED*	Designers (architects and engineers) and professional with experience in sustainable construction.
DIDACTIC METHOD (classes, workshops, internships)	Two days of course.; Course Breakdown:; Day 1 :Principles of the Démarche BDM and the BDM Commission;; Demonstration of project evaluation from the repository;; The use of the collaborative platform;; overview of available Envirobat BDM tools.; Day 2 ;Sustainable building techniques;; The fundamental principles of bioclimatism;; Summer comfort with sun protection;; Renewable energies;; Circular economy, use control, vegetation, water management.; At the end of the training, there is a self-assessment questionnaire that allows the trainee to verify that he has acquired the different skills.
DURATION OF COURSE	2 day of training and final self-assessment questionnaire
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	- 5 years of experience in sustainable construction;; - An up-to-date membership of the ENVIROBATBDM association, either individually or under the structure through which the BDM guide works;; - Its annual insurance contributions in line with the nature of the projects supported in the BDM process. A copy of the insurance certificate should be sent to ENVIROBATBDM.
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	To maintain the role of BDM Accompagnateur, professional has to:;- attend 3 commissions each year other than the one for which he or she is a guide for a minimum half-day;;- participate in the specific "BDM companion" training provided by the EnvirobatBDM association and to participate each year in the BDM Support Seminar (1 day at the end of the summer);;- undertake to receive regular training on the theme of sustainable design (justify having at least one training course every two years), by regularly updating his CV on the EnvirobatBDM site.
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Yes, once passed the final exam, the professional is added to the ENVIROBAT BDM Accompagnateurs register.; https://www.envirobatbdm.eu/accompagnateurs
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	ENVIROBAT BDM; https://www.envirobatbdm.eu/
SPONSORING INSTITUTION (keep track of the source of information)	ENVIROBAT BDM

Units of Learning Outcome 1 (ULO)	Support the project management team from the first sketches of the project until the building operation, assessing
Knowledge & skills	Understand the Démarche BDM;; Support the project management team until the building operation;; Knowledge about buildings components and sustainability;; Knowledge about Participatory process;; Ability to assess the environmental, social and economic aspects of the building;; Explain and carry out a BDM assessment on a building.

OTHER - code:		O02
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*		BNB Sustainable Building Expert
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)		BNB Sustainable Building Expert is a professional able to assess the sustainability level of buildings through the application of the BNB assessment system.
TARGET GROUPS ADDRESSED*		Designers (architects and engineers)
DIDACTIC METHOD (classes, workshops, internships)		Theoretical lessons and final exam.;Course Breakdown::Sustainable building - needs, goals, benefits;Principles of sustainable business;Chances and goals of sustainable building;Benefits for owners and users;BNB system structure - sustainability criteria and weighting;BNB assessment system;Creative building and outdoor space quality;Influence on the design and urban development quality;Characteristics of stay in the outdoor area;Functional building quality;Accessibility - paths, openings, orientation systems, operating elements;Convertibility - building geometry, floor plans, construction and technical;Furnishing;Space efficiency - optimal space and workplace solutions;Accessibility of outdoor facilities, buildings and indoor facilities;System solutions for energy supply;Heat supply and heating technology;Cold supply and ventilation / air conditioning technology;Heat / cold storage and component activation;System coupling with renewable energies;Design of optimal energy systems;Life cycle assessment;Accounting methodology for components and energy carriers;Data sources and software;Dismantling, separation and recycling;Dismantling process and construction-specific dismantling effort;Fasteners and separation effort of component layers;Opportunities for recycling building material fractions;Thermal comfort and indoor air hygiene;Thermal comfort - properties and influencing factors;Structural and technical optimization measures;Verification procedure;Indoor air ;Indoor air quality - properties and influencing factors;Measurement of pollutants in indoor air;Types of ventilation;Calculation of window ventilation;Acoustic comfort and soundproofing;Effects of noise;Room and building acoustics requirements, parameters and planning approaches;Measurement, calculation and evaluation of room and building acoustics target values;Practical examples of structural design and choice of materials;Visual comfort;Requirements for the lighting conditions of workplaces;Availability and usability of daylight;Light control, sun and glare protection;Effects of facade design on visual comfort in the workplace;Optimization of lighting concepts through simulations;Energy-efficient total solutions with daylight and artificial light;Life cycle cost analysis;Types of costs and calculation method;Performance and cost approaches for maintenance, operation and renewal;Application accompanying the project;Resistance to natural hazards;Natural hazards for buildings and their potential hazards;Measures to increase resilience;Pollutants in the interior and exterior;Material and substance groups with risk potential ;Tender, award and construction;Tendering and awarding of planning and services for BNB;Tendering of construction product requirements ;Installation control of sustainability-relevant building products;Certification process;The role and performance of the expert;Phase-related advisory and evaluation services;Additional planning services;Rewards Evaluation workshop;BNB assessment of an office building (group work);Analysis of the optimization potential;BNB module "New laboratory building";Application
DURATION OF COURSE		Course duration:11 seminar days and 1 exam day
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		It is preferable to have a degree in architecture and/or engineering.;Comprehensive knowledge concerning sustainability.
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any		Yes, once passed the final exam, the professional is added to the BNB Nachhaltiges Bauen ;register as Expert for Sustainable Building (STI)
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*		Bewertungssystem Nachhaltiges Bauen (BNB); https://www.bnb-nachhaltigesbauen.de/
SPONSORING INSTITUTION (keep track of the source of information)		German Federal Ministry for construction and home (BMi).;Federal Agency for Real Estate.

Units of Learning Outcome 1 (ULO) (EM2, EPO, ER7, IS6, IS7, IS9) – PROF/TRAC	Undertake sustainability assessment of a building using BNB assessment system
Knowledge & skills	Understand the BNB process;;Understand the contexts and specifications applicability of the BNB system;;General knowledge about buildings components and sustainability;;General knowledge in tendering and awarding of planning and services for BNB; ;General knowledge about how to perform a Life cycle cost analysis;;Explain and carry out a BNB assessment on a building.

OTHER - code:	 003
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	BNK Auditor
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	BNK Auditor is a professional which has the task of accompanying building owners during a house construction project throughout the entire sustainability certification process. The auditor provides support in all areas of certification, from project registration to the collection and preparation of documents and evidence to the issuing of certificates and the awarding of certificates. Auditors also inform building owners about the modalities for applying for funding for sustainability certification and the certification costs. BNK Auditors are experts in the field of sustainable construction and are active throughout Germany. BNK auditors have a very high level of qualification, which ensures optimal support for an efficient and sustainable construction process. After the BNK Auditor has performed the certification of the building, a conformity check of the assessment and the submitted documents is then carried out by an independent testing institute (BiRN) appointed by the Federal Building Ministry. The four-eyes principle ensures the high quality of the certification and application of the BNK system. After a successful conformity test, the BiRN testing institute issues the sustainability certificate. The Building Institute for Resource-Efficient and Sustainable Building GmbH (BiRN) has been approved by the Federal Building Ministry (BMUB) since April 8th, 2016 as an official system carrier and as an executive certification body for the evaluation system for sustainable small housing construction (BNK) in Germany.
TARGET GROUPS ADDRESSED*	Designers (architects and engineers)
DIDACTIC METHOD (classes, workshops, internships)	Theoretical lessons and final exam.; Basic training; The basic training to become a BNK auditor takes the form of a two-day training seminar plus additional practice (home work) and online examination, which BiRN conducts at regular intervals as the sole training institution or in cooperation with associations and institutions. The basic training seminar comprises 10 training modules plus a sample exercise and homework exam, which the trainees have to go through.; Course Breakdown: Basics for sustainability assessment and implementation of the BNK system (seminar day 1); Module 1: General principles of the BNK evaluation methodology; Module 2: Healthy living and comfort; Module 3: Sound insulation, security, building services and accessibility; Module 4: Economic Quality and Life Cycle Costing - (Theory and Practice); Module 5: Basics of life cycle assessment - (theory and practice); Module 6: Resource efficiency and energy; Module 7: Construction process quality in small residential building; Practical exercises and application of the BNK system in practice (seminar day 2); Module 8: Example evaluation and documentation of a model single-family home using evaluation forms and work aids; Module 9: Presentation of the sustainability certification process for the BNK system in practice; Module 10: General framework conditions for BNK certifications and funding (e.g. KfW funding); Home work; Carrying out a sample audit as home work.; Final examination for the content taught (online).; Optional specialization modules for basic training; In addition to the basic training as a BNK auditor, BiRN offers optional specialization modules in the field of sustainable building, which can be optionally taken to deepen knowledge or to prepare or supplement the basic training seminar.; Life cycle assessment and life cycle costs of buildings - theory and practice (1 day) carried out by BiRN; Home health and indoor hygiene short seminar (1 day) conducted by BiRN
DURATION OF COURSE	Course duration; 2 training days, home work and final examination
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	-Architecture or engineering studies, reference to the construction sector (Diploma / Master); -Architecture or engineering studies (Bachelor) and at least two years of relevant professional experience in the construction sector; -Other studies / training and at least five years of relevant professional experience in the building sector related to sustainable building (e.g. building biology); -Persons with relevant knowledge (e.g. DGNB auditor or BNB coordinator) or equivalent qualifications not listed in the field of sustainable building - only participation in a training seminar required.; The final recognition of the BNK auditor status as well as the admission to the seminar for advanced training is decided by BiRN with the support of the scientific advisory board in individual cases after examination of the qualification certificates. In order to carry out certification at BiRN, after successfully completing training as a BNK auditor, you must acquire a certification license.
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	Yes, there are mandatory advanced training seminars for existing BNK auditors.; For quality assurance and to maintain the BNK auditor status, the BNK auditors must take part in a further training course (duration 1 day) once a year. This ensures the permanent qualification of all auditors and represents a suitable knowledge transfer structure in the event of changes to the BNK system (e.g. system development, changes in KfW funding modalities, etc.).
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	No. If you want to have your house certified with the BNK system, you must send an e-mail to BiRN with a brief description of the project and the location, after they will put you in touch with a competent BNK auditor (BiRN) for your project in your area.
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	The Building Institute for Resource-Efficient and Sustainable Building GmbH (BiRN)
SPONSORING INSTITUTION (keep track of the source of information)	Building Institute for Resource-Efficient and Sustainable Building GmbH (BiRN); Bavarian Chamber of Architects; Munich University of Applied Sciences; University of Munich in cooperation with the Strascheg Center for Entrepreneurship (SCE)
Units of Learning Outcome 1 (ULO) (EM2, EPO, ER7, IS6, IS7, IS9) – PROF/TRAC	Undertake sustainability assessment of a small building using BNK assessment system
Knowledge & skills	Understand the BNK process; Understand the contexts and specifications applicability of the BNK system; Advanced knowledge about buildings components and sustainability; Ability to collect all the necessary documents and documents for the certification of the house with the BNK system; Ability to communicate closely with planners, construction companies and clients; Explain and carry out a BNK assessment on a small building.

OTHER - code:		O04
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	BREEAM AP (Advisory Professional)	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The course has been designed to allow suitably experienced construction professionals who have a good knowledge of environmental design and the design process to deliver new construction and refurbishment of buildings to meet BREEAM requirements. The BREEAM AP (Advisory Professional) qualification enables professionals to work across the relevant BREEAM schemes as a recognised sustainability professional and champion. By successfully completing this training course, the candidate will qualify as a BREEAM AP (Design & Site). Candidates who wish to focus on site-based BREEAM activities should take the BREEAM AP (Site) course. On this course, the candidate learns the role of the AP and understands what a development needs to do in order to meet BREEAM targets and sustainability goals. Participants learn how to facilitate project teams to schedule activities, set priorities and negotiate the trade-offs required to achieve the target BREEAM rating when the development is formally assessed. https://www.bre.ac/course/breeam-advisory-professional-online/#pathways	
TARGET GROUPS ADDRESSED*	Architects, engineers and others with demonstrable design skills and responsibilities who want to specialise in BREEAM.	
DIDACTIC METHOD (classes, workshops, internships)	- This BREEAM AP training course is delivered in 6 online modules followed by a classroom-based workshop; a classroom-based examination. The 6 training modules cover: Module 1 – BREEAM overview, basics of BREEAM and roles within the scheme, its aims and principles, scope of assessments and history timeline; Module 2 – looks at key issues within BREEAM UK New Construction; Module 3 – looks at key issues within BREEAM International New Construction; Module 4 – looks at site-based work during construction; Module 5 – more detailed review on: Roles and responsibilities; Sustainable construction; How BREEAM works; Design team responsibilities; Basic approach for BREEAM assessments; Whole-life Value; Collaboration; Importance of Timing; Relationship between the different BREEAM schemes; Comparison of costs per percentage point basis; BREEAM PI Insurance; Module 6 – associated information documentation; Examination information	
DURATION OF COURSE	20 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	- The candidate will need to either hold a recognised academic or vocational qualification in a relevant built environment discipline or have at least three years' post-graduate (or equivalent) professional experience working in a role covering the sustainability of the built environment. In addition, he/she should: have had team involvement on a number of projects where sustainability was part of the project brief; be able to demonstrate knowledge of environmental design/integrated design with an appreciation of life cycle assessment and cost analysis, and; be able to demonstrate an ability to manage multiple tasks and have time management skills.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	An annual subscription fee has to be paid for maintaining BREEAM AP status.	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	After successfully completing the training course, the candidate will be able to apply for subscription to practise as a BREEAM AP (Design & Site). An annual subscription fee is payable for all BREEAM APs on successful completion of the exam. This maintains the professional's Green Book Live listing, provides access to the BREEAM Extranet and maintenance of CPD and is a requirement for maintaining AP status.	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	BRE Academy https://www.bre.ac/ ;	
SPONSORING INSTITUTION (keep track of the source of information)	BRE Global Ltd. https://www.bregroup.com/ ;	

Units of Learning Outcome 1 (ULO)	Supporting a project to achieve BREEAM targets and maximise opportunities for project performance
Knowledge & skills	The BREEAM APs will be able to: Encourage an integrated design and construction process; Use BREEAM as a framework to establish, agree and achieve the desired level of sustainability performance for a development; Provide expert advice to the design team using the principles of environmental sustainability, environmental design and the environmental assessment process; Offer design advice; Facilitate the design team's efforts by providing key input throughout the design process; Schedule activities, set priorities and negotiate trade-offs; Target BREEAM rating at formal assessment in the most cost-effective way; Be able to understand the basics of sustainability on site, both in the correct installation of building components for the optimum environmental performance of the finished building and in minimising impacts from the building site and operations; Know how to successfully champion sustainability onsite, including how to involve site workers and the supply chain; Understand the process of BREEAM certification and know their role within the post-construction stage assessment; Be able to identify the correct type of evidence required to enable the BREEAM assessor to carry out their assessment

OTHER - code:	 O05
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	BREEAM Associate
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The BREEAM Associate course offers an understanding of BREEAM principles, the process of applying these and managing risk from pre-tender to completion of a building. The breadth of coverage appeals to all members of the project team to understand, in-depth, the essence of what the BREEAM Environmental Assessment Methodology is about, what it involves, and how to successfully support the BREEAM process.; https://www.bre.ac/course/breeam-associate/
TARGET GROUPS ADDRESSED*	Design teams, construction teams, architects, engineers, project managers, value engineers, procurement teams, and those with an interest in environmental assessment.
DIDACTIC METHOD (classes, workshops, internships)	- Online course.;The course concludes with a 30-minute online examination comprising 40 multiple choice and true/false style questions.;The course programme includes;;BREEAM basics;Success behaviours;Technical delivery of BREEAM;Resources
DURATION OF COURSE	30 hours
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	None.;The course is especially suitable for those working on BREEAM certified projects or looking to introduce BREEAM methodology into their organisation. No prior BREEAM experience is required.
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	No
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	None.;BREEAM Associate can serve as an immersive introduction for professionals who are considering progressing on to become BREEAM Advisory Professionals or interested in undertaking BREFAM building certifications as BREFAM Assessors.
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	BRE Academy https://www.bre.ac/ ;
SPONSORING INSTITUTION (keep track of the source of information)	BRE Global Ltd. https://www.bregroup.com/ ;
Units of Learning Outcome 1 (ULO)	Basic understanding of BREEAM scheme(s) and process
Knowledge & skills	The BREEAM Associates will be able to;;use a basic understanding of the BREEAM scheme(s) and process within their project role/involvement to facilitate the adoption of BREEAM-compliant solutions and the production of project information for BREEAM compliance purposes;;adapt a project to meet BREEAM standards in line with the advice of the BREEAM Advisory Professional;;Know how and when to work with BREEAM assessors and sustainability champions;;confidently navigate the BREEAM manuals;avoid common mistakes and manage risk from pre-tender through to completion.

OTHER - code:	 O06
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	BREEAM Certified Passive House Designer
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The course helps learners to achieve the Certified European Passive House qualification. The course prepares learners for the Passive House exam which is set by the Passive House Institute (PHI). https://www.bre.ac/course/certified-european-passive-house-designer-virtual/
TARGET GROUPS ADDRESSED*	Designers (architects and engineers)
DIDACTIC METHOD (classes, workshops, internships)	The course includes::a) approximately 20-36 hours of interactive online modules;self-study of video material plus exercises – approximately 30 hours plus 4-6 hours for a PHPP project;;Introduction to Building Physics (These modules are optional refreshers) ;Construction Heat Loss ;Thermal Mass ;Heat Gains and Energy ;Balance Indoor Air Quality and Ventilation ;Passive House On-line Training ;A1 Introduction to Passive House A3 Economics Background A5 Compact Design Dimensional Analysis (optional) B1 Passive house construction B2 Airtight construction B3 Thermal bridge free design Blower door test B6 Passive House Windows B7 Shading B8 Site Quality Assurance C1 Ventilation C6 Ventilation Examples C7 Heating Fundamentals C8 Heat Generation C9 Temperature Variation C10 Distribution Losses;Passive House Planning Package Pre-course Preparation ;Using the PHPP package to investigate/plan a small, but complex, Passive House project;b) virtual classroom training: 5 days of training course will be delivered online as a virtual classroom. In arrangement with the PHI, it will replicate the workshop format of the original classroom training. The lectures will be supplemented by videos, live calculations, demonstrations and discussions to ensure delegates maximise their learning experience. To facilitate this the course is limited to 15 delegates.;The course includes detailed topics covering::Passive House facade details;Construction heat bridges;Passive House windows;Air-tightness and Blower Door Test (demonstration);Thermography (demonstration);Ventilation & MVHR (design, commissioning and testing);Summer comfort;Quality Assurance during planning, on site and commissioning;Passive House Planning Package (PHPP);Financial calculations for PH decision making;c) Passive House examination. In arrangement with the PHI the exam will be undertaken online a few weeks after the training course to give time for learners to consolidate their learning.
DURATION OF COURSE	50 – 66 hours
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	- 100 CPs (Credit Points) should be ac-quired with-in the 5 years val-id-ity peri-od of the pre-vi-ous cer-ti-fic-ate. The professional can get cred-it points by::designing and documenting a certified Passive House;;par-ti-cip-at-ing in rel-ev-ant Pass-ive House con-tinu-ing edu-ca-tion events or teach-ing act-iv-it-ies.
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Registration in the international list of certified Passive House Designers/Consultants
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	BRE Academy https://www.bre.ac/ ;
SPONSORING INSTITUTION (keep track of the source of information)	BRE Global Ltd. https://www.bregroup.com/ ;
Units of Learning Outcome 1 (ULO)	Apply the Passive House principles to the design of residential projects
Knowledge & skills	knowledge and skills needed to pass the Passive House exam as well as to be a designer of residential Passive House projects.

OTHER - code:		O07
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	BREEAM Communities Assessor	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	BREEAM Communities 2012 (see table 1 below) is targeted at neighbourhood scale developments. It aims to help the design team, developers and planners to improve, measure and independently certify the sustainability of a large-scale development at the design and planning stage. The scheme influences sustainability at the early stages of project development through community engagement, site strategy and implementation in design. This can lead into BREEAM assessments of buildings and homes.; https://www.bre.ac/course/breem-communities-2/	
TARGET GROUPS ADDRESSED*	This training course is aimed at anyone who is interested in delivering BREEAM Communities Scheme assessments; planning consultants, developers, urban planners, designers.	
DIDACTIC METHOD (classes, workshops, internships)	This 3-days course is broken down into two modules. The first module (day one) is an introduction and overview of BREEAM Communities 2012. It is suitable for planning officers, consultants and developers who want to understand the scheme and how to use it. ;The second module (days two and three) covers the technical content of the scheme and detailed information about the process of assessment and certification. Both the first and second modules are required for delegates who aim to become a BREEAM Communities Assessor. ;The course includes as well approximately 10 hours of of pre-course online learning.;Module 1 – Day 1;an introduction to BREEAM Communities;the international, national and local context for sustainable communities;when to use BREEAM Communities and which projects are suitable;meeting key sustainability objectives with BREEAM Communities;meeting key planning requirements with BREEAM Communities;the links between BREEAM Communities 2012 and building level assessments.;Module 2 – Days 2 and 3;timescales, phasing and assessment;the technical aspects of BREEAM Communities;an introduction to the scoring tool;the assessor's role;the assessment process;using BREEAM Communities 2012 outside of the UK.;Examinations;;Please note that all those wishing to undertake BREEAM Communities 2012 assessments are required to achieve certification against the Competent Persons Scheme provided by BRE Global. For certification you are required to undertake and pass the relevant examinations.;	
DURATION OF COURSE	33 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	There are no pre-requisites to becoming an assessor. ;An interest or active involvement in the delivery of large scale developments and masterplans is helpful.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	To practice as a licenced BREEAM Assessor an annual licence fee has to be paid and adequate levels of professional insurance, particularly professional indemnity insurance has to be hold by the professional.	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	On successful completion of the course and the examinations the participant gains BREEAM Assessor qualification. Within 12 months, the professional must apply to BRE Global Ltd to become a Licenced BREEAM Assessor under the Scheme in order to practice and carry out assessments.	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	BRE Academy https://www.bre.ac/ ;	
SPONSORING INSTITUTION (keep track of the source of information)	BRE Global Ltd. https://www.bregroup.com/ ;	

Units of Learning Outcome 1 (ULO)	Undertake assessments of large-scale developments and masterplans with reference to the BREEAM Communities 2012 scheme.
Knowledge & skills	At the end of the training course the professional gains a detailed knowledge of the relevant BREEAM scheme criteria and certification process and is able to::understand the role of the assessor;;approach assessment with the mindset of an assessor;;determine ratings of a project/asset with reference to the relevant BREEAM scheme;;know the technical aspects of the manual and applying it to a case study;;understand the assessment process and support structures in place for the scheme and assessors;;collect the necessary information/evidence by interacting closely with the project management team;;manage the complete assessment process;;prepare an assessment report;;apply for certification from BRE Global Ltd.

OTHER - code:		O08
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	BREEAM Domestic Refurbishment - New Assessor	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The course will introduce learners to the BREEAM Domestic Refurbishment scheme and the assessment process. The BREEAM Domestic Refurbishment scheme provides a methodology, software tool and certification for those responsible for delivering sustainable domestic refurbishment projects. It is designed to help building owners and occupiers save operating costs, reduce the environmental impacts of refurbishments and to increase the sustainability of existing building	
TARGET GROUPS ADDRESSED*	This training course is aimed at anyone who is interested in delivering BREEAM Domestic Refurbishment assessments: building and real estate service providers/professionals, designers including architects and engineers, energy and environmental consultants.	
DIDACTIC METHOD (classes, workshops, internships)	The course delivered through a mixture of pre-course online learning, presentations, workshops and exercises, includes::a) approximately 10 hours of pre-course online learning;;b) classroom training: 2 days of classroom- based learning including presentations, workshops and exercises;;c) exam: 1 day. The third day is the exam day which will start by taking learners through the post refurbishment assessment process and give learners an opportunity to address any questions before taking the course exam necessary to gain the BREEAM Domestic Refurbishment Assessor qualification.	
DURATION OF COURSE	28 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	There are no prerequisites for this course.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	To practice as a licenced BREEAM Assessor an annual licence fee has to be paid and adequate levels of professional insurance, particularly professional indemnity insurance has to be held by the	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	On successful completion of the course and the examinations the participant gains BREEAM Assessor qualification. Within 12 months, the professional must apply to BRE Global Ltd to become a Licenced BREEAM Assessor under the Scheme in order to practice and carry out assessments.	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	BRE Academy https://www.bre.ac/ :	
SPONSORING INSTITUTION (keep track of the source of information)	BRE Global Ltd. https://www.bregroup.com/ :	

Units of Learning Outcome 1. (ULO)	Undertake assessments of projects/assets with reference to the relevant BREEAM scheme.
Knowledge & skills	At the end of the training course the professional gains a detailed knowledge of the relevant BREEAM scheme criteria and certification process and is able to::understanding the role of the assessor;;approaching assessment with the mindset of an assessor;;determine ratings of a project/asset with reference to the relevant BREEAM scheme;;know the technical aspects of the manual and applying it to a case study;;understand the assessment process and support structures in place for the scheme and assessors;;collect the necessary information/evidence by interacting closely with the project or asset management team;;manage the complete assessment process;;prepare an assessment report;;apply for certification from BRE Global Ltd.;gain an understanding of sustainable refurbishment and the refurbishment market;;a brief overview of Health & Safety and Building Regulations in a refurbishment context.;

OTHER - code:	 O09
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	BREEAM International Assessor - New Construction
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The course aims to enable professionals in the construction industry anywhere in the world to become qualified as a BREEAM Assessor. The course provides a thorough understanding of the BREEAM process, specifically for the BREEAM International 2016 scheme. On successful completion of the course and examinations, the professional will emerge as a fully qualified BREEAM International New Construction assessor and can apply for a BREEAM International New Construction assessor licence. The role of Assessors is vital to the BREEAM certification process. Qualified and licensed BREEAM Assessors work with project teams to conduct the assessment of a building prior to checking by the certification body, BRE Global. Assessors are responsible for managing the assessment process and validating a project's compliance against BREEAM. They co-ordinate the collection of information (or evidence), which will be used to evaluate the project/asset against the relevant scheme criteria. This will involve attending select meetings and undertaking site visits to gather the information, however assessors are not required to take part in regular design/project team meetings (unlike BREEAM Advisory Professionals). Once the Assessor has completed their assessment, they submit an assessment report with reference to an auditable trail of evidence, to BRE Global Ltd for a certification decision. An effective Assessor is one that: • Uses their experience and detailed scheme knowledge to confidently engage with and inform the project or asset management team of scheme requirements; • Works closely with, but is independent from, the project or asset management team; • Is involved in key stages of the project, ensuring efficient assessment and timely submission for a certification decision; • Impartially identifies, communicates and reports areas of compliance and non-compliance; • Gathers and references a robust and auditable trail of information as evidence of compliance or non-compliance; • Applies and upholds the credibility of the scheme to ensure the certification outcome is robust and consistent; • Complies with all the requirements in the Licence Agreement; relevant: https://www.bre.ac/course/breeam-international-new-construction-assessor/
TARGET GROUPS ADDRESSED*	This training course is aimed at anyone who is interested in delivering BREEAM environmental assessments: building and real estate service providers/professionals, designers including architects and engineers, energy and environmental consultants.
DIDACTIC METHOD (classes, workshops, internships)	The course includes: a) approximately 30 hours of interactive online modules (interactive content and technical presentations). Each module concludes with an automated quiz to track participant's progress. Module 1 – An introduction to BREEAM; Module 2 – The BREEAM International and Bespoke processes, reporting and evidence requirements; Module 3 – Technical modules; Management, Health & Wellbeing, Energy, Transport; Module 4 – Technical modules; Water, Materials, Waste, Land Use & Ecology, Pollution; b) classroom training: 2.5 days of classroom-based learning including workshops and group learning activities; Day 1 – Brief initial test to ensure you have completed the online self-study modules; Review of the BREEAM International processes; Focus on a couple of the most complex issues within the scheme; Day 2 – Tailoring BREEAM International for different building types; Selling BREEAM; Relationship between different BREEAM Schemes; BREEAM International exam; Day 3 (half day): Question and Answer Session; BREEAM General Understanding exam; c) two multiple choice examinations
DURATION OF COURSE	48 hours
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	There are no prerequisites for this course.
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	To practice as a licenced BREEAM Assessor an annual licence fee has to be paid and adequate levels of professional insurance, particularly professional indemnity insurance has to be held by the
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	On successful completion of the course and the examinations the participant gains BREEAM Assessor qualification. Within 12 months, the professional must apply to BRE Global Ltd to become a Licenced BREEAM Assessor under the Scheme in order to practice and carry out assessments.
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	BRE Academy https://www.bre.ac/ ;
SPONSORING INSTITUTION (keep track of the source of information)	BRE Global Ltd. https://www.bregroup.com/ ;

Units of Learning Outcome 1 (ULO)	Undertake assessments of projects/assets with reference to the relevant BREEAM scheme (BREEAM International 2016 scheme).
Knowledge & skills	At the end of the training course the professional gains a detailed knowledge of the relevant BREEAM scheme criteria and certification process and is able to: • determine ratings of a project/asset with reference to the relevant BREEAM scheme; • collect the necessary information/evidence by interacting closely with the project or asset management team; • manage the complete assessment process; • prepare an assessment report; • apply for certification from BRE Global Ltd.

OTHER - code:	 O10
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	BREEAM International Assessor - Refurbishment and Fit-Out – Existing Assessor
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The course aims to give existing licensed BREEAM International New Construction Assessors the qualification to apply for a BREEAM International Refurbishment and Fit-Out licence.;Successful completion of both the training course and test will give existing licensed BREEAM International New Construction Assessors the qualification to apply for a BREEAM International Refurbishment and Fit-Out Licence. ;The role of Assessors is vital to the BREEAM certification process. Qualified and licensed BREEAM Assessors work with project teams to conduct the assessment of a building prior to checking by the certification body, BRE Global.;Assessors are responsible for managing the assessment process and validating a project's compliance against BREEAM. They co-ordinate the collection of information (or evidence), which will be used to evaluate the project/asset against the relevant scheme criteria. This will involve attending select meetings and undertaking site visits to gather the information, however assessors are not required to take part in regular design/project team meetings (unlike BREEAM Advisory Professionals). Once the Assessor has completed their assessment, they submit an assessment report with reference to an auditable trail of evidence, to BRE Global Ltd for a certification decision.;An effective Assessor is one that;:• Uses their experience and detailed scheme knowledge to confidently engage with and inform the project or asset management team of scheme requirements;• Works closely with, but is independent from, the project or asset management team;• Is involved in key stages of the project, ensuring efficient assessment and timely submission for a certification decision.;• Impartially identifies, communicates and reports areas of compliance and non-compliance;• Gathers and references a robust and auditable trail of information as evidence of compliance or non-compliance.;• Applies and upholds the credibility of the scheme to ensure the certification outcome is robust and consistent.;• Complies with all the requirements in the Licence Agreement;relevant;https://www.bre.ac/course/breeam-international-refurbishment-and-fit-out-online/
TARGET GROUPS ADDRESSED*	Existing licensed BREEAM International New Construction Assessors
DIDACTIC METHOD (classes, workshops, internships)	The course is fully online. The test consists of 25 multiple choice questions, which need to be answered within a 90 minute time slot.
DURATION OF COURSE	8 to 10 hours depending on participant's level of experience
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	To be a licensed BREEAM International New Construction Assessors
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	To practice as a licenced BREEAM Assessor, an annual licence fee has to be paid and adequate levels of professional insurance, particularly professional indemnity insurance has to be hold by the
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	On successful completion of the course and the examinations the participant gains BREEAM Assessor qualification. Within 12 months, the professional must apply to BRE Global Ltd to become a Licenced BREEAM Assessor under the Scheme in order to practice and carry out assessments.
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	BRE Academy https://www.bre.ac/ ;
SPONSORING INSTITUTION (keep track of the source of information)	BRE Global Ltd. https://www.bregroup.com/ ;
Units of Learning Outcome 1 (ULO)	Undertake assessments of projects/assets with reference to the relevant BREEAM scheme (BREEAM Refurbishment and Fit Out -RFO standard).
Knowledge & skills	At the end of the training course the professional gains a detailed knowledge of the relevant BREEAM scheme criteria and certification process and is able to;:determine ratings of a project/asset with reference to the relevant BREEAM scheme;;collect the necessary information/evidence by interacting closely with the project or asset management team;;manage the complete assessment process;;prepare an assessment report;;apply for certification from BRE Global Ltd.

OTHER - code:		O11
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Certified Passive House Designer/Consultant	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The course helps learners to achieve the Certified European Passive House Designer/Consultant qualification. The course prepares learners for the Passive House exam. The exam itself however is not included in the course. It can be taken at one of the recognized examination centres or online. On successfully passing the exam, the candidate will receive an internationally recognized certificate and be listed on our worldwide database for 5 years.; https://cms.passivehouse.com/en/training/course-exam-providers/passive-house-institute-offer/	
TARGET GROUPS ADDRESSED*	Professionals, designers, consultants, architects and engineers, students.	
DIDACTIC METHOD (classes, workshops, internships)	This course consists of: a 3-day e-learning module on the PHI Moodle platform on Passive House Fundamentals. It covers 10 topics: each one is divided into sub-units, including a video presentation followed by further material and a quiz.; 7 days of live on-line training: besides lectures and discussions, the learner will deepen knowledge with workshops, as well as calculation and design exercises. ;Module 1 - Building envelope;Day 1: Building envelope;Day 2: Building envelope;Module 2 - Building Services & Economics;Day 3: Ventilation;Day 4: Heating, cooling/dehumidification, domestic hot water;Day 5: Retrofit, economics, certification;Module 3 - PHPP Basics;Day 6 and 7: Hands on PHPP: Basic knowledge of the Passive House Planning Package (PHPP), the energy balancing and planning tool for efficient buildings and refurbishments.;This course will prepare the candidate to pass the Certified Passive House Designer/Consultant exam. The exam itself however is not included in the course. It can be taken at one of the recognized examination centres or online. On successfully passing the exam, the candidate will receive an internationally recognized certificate and be listed on our worldwide database for 5 years.	
DURATION OF COURSE	80 hours Exam: 3 hours	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant		
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	- The certification has validity period of 5 years.;100 CPs (Credit Points) should be acquired within the 5 years validity period of the previous certificate. The professional can get credit points by: designing and documenting at least one certified Passive House.;participating in relevant Passive House continuing education events or teaching activities. 70 of the 100 CPs at the most may be acquired in one of three possible areas (teaching, events or advanced training).	
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Registration in the international list of Certified Passive House Designers/Consultants	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	PH Institute https://cms.passivehouse.com	
SPONSORING INSTITUTION (keep track of the source of information)	PH Institute https://cms.passivehouse.com	

Units of Learning Outcome 1 (ULO)	Passive House definition and criteria
Knowledge & skills	- Understanding of the climate-independent Passive House definition and its derivation;;Understanding of the requirements for hygienic air, fresh air quantity that is necessary per person, extract air demand, minimum air change rate;;Understanding of the relationship between relative indoor air humidity and effective air exchange;;Basic principles of the methodology for evaluation of thermal comfort based on ISO 7730;;Understanding of the certification criteria for Passive House buildings and retrofits using Passive House components (EnerPHit);;Knowledge of the key parameters (e.g. in the Verification worksheet of the PHPP) heating load, cooling load, annual heating demand, annual cooling and dehumidification demand, n50 value, primary energy (non-renewable and renewable PER), final energy, energy services, frequency of overheating;;Definition and influence of the reference areas and volumes used in Passive House design and certification;;Basic understanding of the issue of assessing sustainability of the energy demand of buildings in the context of a changing energy supply system.

Units of Learning Outcome 2 (ULO)	Basic principles for the thermally insulating envelope:
Knowledge & skills	- The principle behind the thermal envelope. Quality of thermal protection for a Passive House with reference to insulation thicknesses/quality and avoidance of thermal bridges. Relationship between complex thermal envelopes and the construction costs.;Relationship between the U-value and interior surface temperature.;Typical U-values of opaque building components for Passive House envelopes.;Typical assemblies/structures in lightweight and solid construction which are suitable for Passive House buildings.;Acquaintance with thermal bridge coefficients (exterior and interior dimensions) and qualitative analyses of building envelopes with regard to potential thermal bridges.;Understanding of the principle of thermal bridge free design. Approach to be used for cases where a completely thermal bridge free solution is not feasible.;Quantitative estimation of simple thermal bridges.;Knowledge of suitable insulating materials and their main characteristics.;Moisture transport mechanisms in building components and their scale, occurrence of moisture-related structural damage caused by convection, also diffusion where applicable. Appraisal of interior insulation, challenges, prerequisites for its use, build-ups, limitations to its use, and the level of efficiency that is achievable.
Units of Learning Outcome 3 (ULO)	Basic principles for the airtight building envelope
Knowledge & skills	- The principle behind an airtight building envelope. Importance of airtightness in buildings, e.g. with reference to energy demand, heating load, thermal comfort and structural integrity.;Knowledge of airtight envelope designs in solid construction and lightweight construction.;Knowledge of suitable airtight building component connections for lightweight, solid and mixed construction.;Knowledge of suitable airtight sealing methods for penetrations.;Awareness of potential weak spots.;Understanding of the planning task "airtightness".;Knowledge of test procedures for the airtightness measurement and requirements. Determination of the reference volume, carrying out a measurement, understanding of the contents of the measurement report, quality assurance.;The appropriate time for the measurement.;Assessment of basic leakages (e.g. holes from nails, power sockets, window connection joints, unplastered exterior wall surfaces, sheeting that has come loose, penetrations that have not been airtightly sealed, open downpipes).;Knowledge of methods for permanent fixing of simple leaks.;Assessment of serious leakages (ends of wooden beams in masonry construction, unplastered exterior walls behind interior cladding (e.g. stairs), regularly occurring penetrations (e.g. due to continuous rafters);Knowledge of methods for avoiding serious leaks.
Units of Learning Outcome 4 (ULO)	Basic principles for transparent exterior components: heat losses from transparent building components;
Knowledge & skills	- Calculation of window U-values in accordance with EN 10077-1;Basic understanding of how specific values of frames can be reliably determined in accordance with EN 10077-2 through calculation. The importance of this approach for comparability and significance of the determined values.;Understanding of the significance, composition and function of thermally favourable glazing spacers, interaction with the window frame (glazing rebate).;Familiarity with the values Ug, Uf and Dg and the installation thermal bridge coefficient Dinstall. Difference between a "Certified Passive House window frame" and an "Approved (window) connection detail".;Understanding of the influences on the thermal quality of mullion- transom facades, the important effects in the case of sloping or horizontal glazing.;Understanding of the thermal comfort requirements (interior surface temperature criterion) for Passive House suitable windows and the hygiene requirement in this regard.;Estimation and determination of frame ratios.;Build-up of triple low-e glazing systems and knowledge of the main heat transfer mechanisms in windows (heat conduction in the filling gas, heat radiation and low-e coating, convection).;What properties are necessary for a window in a Passive House building? (Knowledge of all specific values, any compensating heating surfaces that are necessary).

OTHER - code:	 O12
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	Certified Passive House Tradesperson
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	The course helps learners to understand how to build a Passive House building. Furthermore learners gain a good understanding of the interactions and interdependency of building components in a Passive House project. This course also enables learners to assess the energy efficiency of any planning modifications and to solve problems with the designers involved in construction due to a similar knowledge base. Over 3 to 5 days, the basis for a high quality building site are ensured by conveying tradespeople an overall impression of the interdisciplinary Passive House concept. Course participants may choose between the Building Envelope or Building Services Specialisation, or take both. The course prepares learners for the Certified Passive House Tradespeople ex-
TARGET GROUPS ADDRESSED*	Trade persons, construction workers, craftsmen, installers. Other building professionals may join as well, to get familiar with the realities of the building site.
DIDACTIC METHOD (classes, workshops, internships)	Over 3 to 5 days, the basis for a high quality building site are ensured by conveying tradespeople an overall impression of the interdisciplinary Passive House concept. Course participants may choose between the Building Envelope or Building Services Specialisation, or take both. Day 1: Interdisciplinary principles; Passive House Basics; Economic efficiency; Airtightness; Construction Process; Day 2-3: Building envelope speciality; Thermal insulation; Thermal bridges; Windows; Existing buildings; Basic: Ventilation; Basics: Heating/cooling; Day 4-5: Building Service speciality; Ventilation; Ventilation - Existing buildings; Heating/cooling supply; Basics: Insulation; Basics: Thermal bridges; Basics: Windows; Exam: it lasts 90 minutes and must be taken in writing at an accredited exam provider. The exam includes multiple choice questions, building site pictures, as well as small calculation and drawing exercises
DURATION OF COURSE	24-40 hours
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	The certification has a validity period of 5 years. 30 CPs (Credit Points) should be acquired within the 5 years validity period of the previous certificate. The tradesperson can get credit points by: documenting his/her work on a highly energy efficient building or a certified Passive House project. This work must meet some technical requirements, which will depend on the trade discipline, as well as on the location and climate of the building; participating in relevant Passive House continuing education events or teaching activities. 20 CPs at the most may be obtained with this second option.
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Registration in the international list of Certified Passive House Tradespeople
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	PH Institute https://cms.passivehouse.com
SPONSORING INSTITUTION (keep track of the source of information)	PH Institute https://cms.passivehouse.com
Units of Learning Outcome 1 (ULO)	Competences of the Certified Passive House Tradesperson
Knowledge & skills	Skills and Knowledge outcomes are described in the following document: Learning Target for Certified Passive House Tradesperson exam: https://cms.passivehouse.com/media/filer_public/51/9b/519b8787-8c4f-4d20-976f-1f89dfee5e0d/hw-i_learning_targets_20120425_en.pdf

OTHER - code:		O13
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	DGNB Consultant	
EQF Level, if any		
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	DGNB Consultant is a professional able to carry out auditing work for DGNB Certificates and Pre-certificates for buildings and districts. DGNB Consultant is able to work closely with the design team and the client during the design and construction process within the meaning of the DGNB Certification. As members of the DGNB Community, DGNB Consultants also help to implement the international application and adaptation of the DGNB System.	
TARGET GROUPS ADDRESSED*	The course addresses DGNB Registered Professional.	
DIDACTIC METHOD (classes, workshops, internships)	Theoretical lessons, digital workshops and final exam.;8 online sessions (40hours) + 2 digital workshops + final exam.;During 8 online sessions, participants will learn about the international application of the DGNB Certification System (Version 2020, international) for sustainable buildings and districts. Two complementary digital workshops assure the practical application of selected DGNB criteria. This way participants gain comprehensive knowledge on the DGNB Certification, the evaluation methodology and the adaptation of individual criteria to local requirements.;To qualify as DGNB Consultants, participants need to take and pass the DGNB Consultant exam.;The exam is done online in a separate appointment and can be taken within a period of 24 months after the training course.	
DURATION OF COURSE	8 online sessions (40hours) + 2 digital workshops + final exam.	
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Proof of participation in the DGNB Consultant Training (within 24 months prior the exam date);Completed academic studies in urban planning, urban design, spatial planning, architecture, civil or construction-related engineering, natural sciences, economics or building physics or related disciplines and;;1 year of relevant professional experience following completion of a post-graduate degree or;2 years of relevant professional experience following completion of an undergraduate degree or;training in the real estate or construction sectors with 5 years of relevant professional experience.	
QUALIFICATION RENEWAL (does the qualification has an expiration date?)		
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Yes, once passed the final exam, the professional is added to the DGNB Consultant register	
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)		
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.dgnb.de/en/index.php:Construction_21 International; https://www.construction21.org/static/construction21-international.html	
SPONSORING INSTITUTION (keep track of the source of information)	DGNB	

Units of Learning Outcome 1 (ULO)	Undertake sustainability assessment of a building using DGNB system
Knowledge & skills	Advanced knowledge about the DGNB process and the DGNB system;;Understand the international application of the DGNB Certification System (Version 2020, international) for sustainable buildings and districts;;Ability to apply all the DGNB criteria;;Comprehensive knowledge on the DGNB Certification, the evaluation methodology and the adaptation of individual criteria to local requirements;;Knowledge about sustainability in the construction and real estate industry.

OTHER - code:	 O14
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	DGNB Registered Professional
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	DGNB Registered Professional is a professional with basic knowledge about the DGNB and the DGNB system. The professional has general knowledge concerning sustainability in the construction and real estate industry.
TARGET GROUPS ADDRESSED*	The DGNB Registered Professional course is aimed at young professionals, students and keen stakeholders within the construction and real estate industry, and beyond, who would like to acquire knowledge about sustainable building and planning.
DIDACTIC METHOD (classes, workshops, internships)	Theoretical lessons and final exam.; 2 full days + final exam.; The compact 2 days course provides participants with an insight into sustainability in the construction and real estate industry and basic knowledge about the DGNB and the DGNB system. Based on their prior knowledge and educational goals, each participant can decide whether to take the exam to qualify as DGNB Registered Professional. The knowledge on sustainable building taught in this course provides the optimal foundations for those professionals seeking to become DGNB Consultants or DGNB Auditors.; Be a DGNB Registered Professional is the first step for a career in the field of DGNB certification as DGNB Consultant or DGNB Auditor.
DURATION OF COURSE	2 days (theoretical lessons) + final exam
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	Completed academic studies in urban planning, urban design, spatial planning, architecture, civil or construction-related engineering, natural sciences, economics or building physics or related disciplines. General knowledge in construction or real estate sectors.; Students enrolled at a university are admitted to the exam. However, you will only receive the certificate as a DGNB Registered Professional after you have completed your studies and send a copy of your graduation certification (or equivalent) to the DGNB Academy.
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	No
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Yes, once passed the final exam, the professional is added to the DGNB Registered Professional register ; https://www.dgnb-akademie.de/fortbildungstermine/index
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.dgnb.de/en/index.php
SPONSORING INSTITUTION (keep track of the source of information)	DGNB

Units of Learning Outcome 1 (ULO)	General knowledge concerning the assessment of a building using DGNB system
Knowledge & skills	Basic knowledge about the DGNB and the DGNB system;; Understand the DGNB process;; Understand the principles of sustainable building;; General knowledge about sustainability in the construction and real estate industry.

OTHER - code:	 O15
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	HQE Certification Référent Aménagement (Urban Planning)
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	HQE Certification Référent Aménagement is a professional which has developed its skills, highlighting its ability to support and guide clients in activities related to the HQETM "Certified by Cerway" Certification outside France and expand their knowledge of the HQETM "Certified by Cerway" certification in Urban Planning.
TARGET GROUPS ADDRESSED*	Designers (architects and engineers)
DIDACTIC METHOD (classes, workshops, internships)	Theoretical lessons and final exam. ;Cerway HQETM Certification Référent Aménagement;Course Breakdown::1st Day (7hours);General presentation of Certiféa and Cerway;;Process and rules of the HQETM Certification Aménagement;;Presentation of an audit;;Presentation of the structure of the Operation Management System;;2nd Day (7hours);Presentation of the content of the technical framework by phase and feedback;;FINAL EXAM (1 hour 15 min);;DOCUMENTATION PROVIDED;• Environmental Management System of an Operation and documentation applicable to the Certification;;• The HQE Certification Referent rules of Certiféa and Cerway;; https://formations.cstb.fr/bo/pdf/a89800b;672983aef4c124cd15a017c3f38a88e9d.pdf
DURATION OF COURSE	2 training days (14hours) + FINAL EXAM (1hour 10 min)
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	• Hold a diploma from the construction field and at least 2 years' professional experience (without a diploma, at least 5 years' professional experience; as a project manager in the construction field);• Have an adequate level of French and/or English (i.e. the ability to express general ideas with nuances and with a working knowledge of language that is sufficient for a professional context);• Know the practices of urban development and the fundamentals of urban planning laws, have a professional practice or project in the field of land use sustainable planning;• Have knowledge about the Management System of a Regional Planning Operation of a territory;• Familiarity with the documents applicable to HQE certification.
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	Accreditation is valid for 3 years. ;The fee paid for the exam allows the right of use and access to services in order to become a recognized referent recognized by Certiféa, for three years.
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Yes, once passed the final exam, the professional is added to the HQE register; https://www.behqe.com/trainings-and-professionals/referentsdirectory
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://formations.cstb.fr/formations/?etp=80#onglets 0
SPONSORING INSTITUTION (keep track of the source of information)	Cerway - education@cerway.com ; CSTB - Centre Scientifique et Technique du Bâtiment http://www.cstb.fr/fr/Certiféa - https://www.certivea.fr/

Units of Learning Outcome 1 (ULO)	Undertake urban sustainability assessment using HQETM Certification process Aménagement
Knowledge & skills	• Carry out a reliable assessment and become proficient in the HQETM Certification process Aménagement (Urban Planning);;Understand the implementation and effectiveness of the Urban Project Management System;• Prioritize the objectives according to their relevance, in the specific context of each urban project;• The HQE Certification Referent rules of Certiféa and Cerway.

OTHER - code:	 O16
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	HQE Certification Référent for Construction and Renovation
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	HQE Certification Référent is a professional which has developed its skills, highlighting its ability to support and guide clients in activities related to the HQUETM "Certified by Cerway" Certification outside France and expand their knowledge of the HQUETM "Certified by Cerway" certification for all types of buildings under construction or renovation (residential and non-residential).
TARGET GROUPS ADDRESSED*	Designers (architects and engineers)
DIDACTIC METHOD (classes, workshops, internships)	Theoretical lessons, video learning, tutoring with an online forum and final exam. HQUETM training courses are delivered 100 % online or organised with local partners.;Cerway HQUETM Certification Référent for Construction and Renovation (REFINTI);Course Breakdown;;7 training modules (minimum 5h30 min);FINAL EXAM (60 min), 1hr multiple-choice examination in presental or by video Skype;;DOCUMENTATION PROVIDED;• Requirements scheme for the project's environmental management of building under construction;;• Assessment scheme for the environmental performance of non-residential buildings;;• Assessment scheme for the environmental performance of residential buildings;;• Synthetical material;;There are also other introductory courses; these programs give everyone an opportunity to understand the basics of certification for buildings under construction, buildings in operation and urban planning and development projects, as well as the skills required to implement these certifications.
DURATION OF COURSE	7 training modules (minimum 5h30 min) + FINAL EXAM (60 min)
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	• Hold a diploma from the construction field and at least 2 years' professional experience (without a diploma, at least 5 years' professional experience;as a project manager in the construction field);;• Have an adequate level of French and/or English (i.e. the ability to express general ideas with nuances and with a working knowledge of language that is sufficient for a professional context);;• Have professional liability (or equivalent);insurance, covering the support activities for;achieving environmental certification that he or;she will be tasked with;;• Be familiar or have a professional practice of;sustainable development applied to construction;projects;;• Familiarity with the documents applicable to;HQE certification.
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	Accreditation is valid for 36 months, provided the maintenance requirements are met.
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Yes, once passed the final exam, the professional is added to the HQE register; https://www.behqe.com/trainings-and-professionals/referentsdirectory
REFERENCE LEGISLATION , if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.behqe.com/trainings-and-professionals/training-offer/education.behqe.com
SPONSORING INSTITUTION (keep track of the source of information)	Cerway - education@cerway.com

Units of Learning Outcome 1 (ULO)	Undertake sustainability assessment of a building using HQUETM Certification process
Knowledge & skills	Carry out a reliable assessment and become proficient in the HQUETM Certification process;;Understand the implementation and effectiveness of the Project Management System; ;Prioritize the objectives according to their relevance, in the specific context of each project; ;General knowledge about buildings components and sustainability.

OTHER - code:	 O17
DENOMINATION OF THE PROFESSIONAL QUALIFICATION*	WELL AP (Accredited Professional)
EQF Level, if any	
BRIEF DESCRIPTION OF THE PROFESSIONAL QUALIFICATION (Explain the main activities managed by the profile, add the link to the training sheet if available)	WELL AP is a professional that has a very thorough knowledge of all the issues related to the binomial well-being and architecture for improving health and human experience through design. WELL Certification measures and certifies the quality level of the internal spaces through a holistic approach. ;WELL assessor will carry out investigations in person to test the level of WELL standard.
TARGET GROUPS ADDRESSED*	Designers (architects and engineers) and who are interested in positively impacting human health through building design.
DIDACTIC METHOD (classes, workshops, internships)	To become a WELL AP, all candidates must pass the 100 questions multiple choice WELL AP exam, administered by GBCI, taken at Prometric testing centres or online using Prometric's remote proctoring service. The final exam lasts 2 hours.;;Courses are designed for professionals who want to prepare for the WELL exam, maintain their credential and expand their knowledge of WELL, and for enthusiasts who are interested in positively impacting human health through building design.;;Courses are developed and updated by International WELL Building Institute and U.S. Green Building Council (USGBC), and Enengo is an official Education Partner and provider of these courses.;;The full suite of GBES's WELL AP study materials (WELL AP Platinum Pack) is available through purchase.;;Examples of available Courses all over Europe.;;An intensive day-long course helps professionals in the design and construction industry, property owners and facilities personnel, and tenants to understand their roles in improving health outcomes. ;WELL AP Preparation Course, designed to streamline preparation for the WELL AP exam, which is the only requirement to become a WELL AP. The WELL AP exam tests an exam candidate's knowledge of the WELL Building Standard, the seven WELL Concepts, all 105 features and their requirements, and the WELL certification process. This course is specifically focused on exam preparation and is not intended to replace the full-day Understanding the WELL Building Standard course.;;WELL Workshop, will provide an overview and insight into the system, as well as case studies on pilot projects that will illuminate the benefits of the Standard.;;Before attempting to take the exam, candidates should ensure that they understand the requirements and references for the exam; self-study is often beneficial.
DURATION OF COURSE	Different typology of courses with different duration. You have also the possibility to attend various workshops. The final exam lasts 2 hours.;
PREREQUISITES (scholastic, academic, professional, on field experience, EQF level), if relevant	It is preferable to have comprehensive knowledge concerning human well-being, building design and indoor environmental quality.
QUALIFICATION RENEWAL (does the qualification has an expiration date?)	To maintain the WELL AP qualification, you have to spend, annually, 24 hours in activities related to sustainable design and human health or 6 hours in WELL-specific courses.
QUALIFICATION REGISTER (a list, public or not, of individuals who achieved the certification), if any	Yes, once passed the final exam, the professional is added to the WELL Accredited Professional. The Green Business Certification Inc., (GBCI).
REFERENCE LEGISLATION, if any (must be linked with energy sustainability)	
PROVIDING INSTITUTION (keep track of the source of information, i.e. direct link)*	https://www.wellcertified.com/well-ap/
SPONSORING INSTITUTION (keep track of the source of information)	International WELL Building Institute ;Green Business Certification Inc. (GBCI)

Units of Learning Outcome 1 (ULO)	Explain and carry out a WELL certification process on a building
Knowledge & skills	Understand WELL certification process;;Knowledge about air and water quality standards, air and water quality monitoring, toxic material, comfort and well-being in buildings;;Ability to perform scientific measurements, so objective, in order to return irrefutable data to the interested parties, through which is possible to see the quality level of an enclosed interior space and plan any future improvement strategies;;Explain and carry out a WELL certification process.