



Improve Skills and Qualifications in the
Building Workforce in Cyprus

**Identification of qualification scheme
requirements**

***D 4.1 Report on current
certification/qualification schemes in
Europe and their requirements
(WP4 –D4.1, Document)***



Co-funded by the Intelligent Energy Europe
Programme of the European Union

BUILD UP Skills We-Qualify: The We-Qualify project will utilize the findings of the national roadmap (Build up skills I) and will facilitate the target of reducing the skills gap between the current situation and the skills needs for 2020, by developing a training and/or qualification scheme for blue-collar workers/installers, which will focus on the most critical skills identified in the roadmap. The critical skills selected to be included in WE-Qualify based on the roadmap developed under CY-Pillar I, are:

- Skill 1: Placement of thermal insulation
 - Skill 1.1: Placement of conventional insulation/thermal insulation plaster
 - Skill 1.2: Placement of external insulation
- Skill 2: Installation of thermopanes and exterior sunshades
 - Skill 2.1: Installation of high energy efficient thermopanes
 - Skill 2.2: Installation of exterior sunshades
- Skill 3: Installation and maintenance of Biomass heating systems

These critical fields were selected based on the existing structure of the building industry, the limited qualification of the installers and the limited available training programmes and material. Although skills 1 and 2 are categorised as high and medium priority, they are not regulated by either any national legislation or Standards of Vocational Qualifications (SVQ) thus, it is considered very important to be included in the WE-Qualify. Moreover, although skill 3 is to be regulated by legislation N210(I)/2012 and is planned to be included in further RES legislations there is a currently a severe lack of experience for the installation of the systems, thus resulting to low efficiency and not sound practices.

The outcomes of WE-Qualify are expected to provide the key components for the upgrading of existing or drafting of new SVQs to be included in the future National Qualification Framework (NQF), an appropriate training methodology and a transparent and clearly defined qualification route. The ambition is to configure a competent workforce specialized on the Energy Performance of Buildings according to European criteria and standards, to encourage a greater number of blue-collar workers to advance their professional skills and knowledge and to help achieve the target for the construction of near zero energy buildings by 2020.

PROJECT COORDINATOR

Mrs Anthi Charalambous, CYPRUS ENERGY AGENCY (CEA)

PROJECT PARTNERS

Cyprus Energy Agency (CEA)	Cyprus
Cyprus Productivity Centre (CPC)	Cyprus
Cyprus Organization for Standardisation (CYS)	Cyprus
Human Resource Development Authority (HRDA)	Cyprus
Technical Chamber of Cyprus (ETEK)	Cyprus
Cyprus Institute of Energy (CIE)	Cyprus

WP4 LEADER

Cyprus Organisation for Standardization (CYS)

DELIVERABLE EDITOR

Cyprus Organisation for Standardization (CYS)

Work Team: Aggeliki Loizou, Diamandis Zafeiriades

LEGAL NOTICE

The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EASME nor the European Commission are responsible for any use that may be made of the information contained therein. Reproduction is authorised provided the source is acknowledged.

TABLE OF CONTENTS

Summary.....	5
Introduction.....	5
Definitions	6
Review of current qualification/ certification schemes in Europe	6
Slovakia	7
General	7
Certification process	7
Training.....	8
Audit	9
Remarks	9
Sweden	9
General	9
Certification process.....	10
Training.....	10
Audit	11
Luxembourg.....	11
general.....	11
Certification process	12
Training.....	12
Romania.....	13
General	13
Certification process	14
Training.....	14
Audit	14
ESTONIA.....	15
General	15
Certification process.....	16
Training.....	17
Audit	17
NETHERLANDS	17

General	17
Certification process	18
Training	18
Audit	18
GERMANY	19
General	19
GREECE	19
General	19
Austria.....	20
General	20
Certification process	21
Training	22
Audit	22
CYPRUS	22
General	22
Certification process	23
Training	24
Conclusion	25

SUMMARY

Across Europe various certification/qualification schemes covering the training and certification of the skills referred in the Build Up Skills We Qualify which includes the placement of thermal insulation, the installation of thermopanels and exterior sunshades and the installation and maintenance of biomass heating systems, exist in the Member States in different forms. Many do not have certification schemes but have qualification schemes. Where certification is available sometimes a number of different schemes operate with different eligibility requirements consisting or not the audit component, with different renewal requirements.

This report reviews the different schemes available throughout Europe and concludes that in all Member States there is the potential for introducing the We Qualify scheme especially for Skills 1 and 2 of this project.

INTRODUCTION

Within Europe demand for the development of qualification schemes for the skills of the placement of thermal insulation, of the installation of thermopanels and exterior sunshades and of the installation and maintenance of biomass heating systems is increasing rapidly since all Members of the European Union are trying to secure the ability of the installers.

Certification schemes can provide reassurance not only to the countries but also to the customers that have hired installers for specific projects, that the installer has the organisation, competence and equipment to complete the tasks hired to execute safely and effectively.

The objective of the We Qualify project is the development of a clearly defined and understandable certification scheme for installers of the skills defined in the scope of the project.

The first stage in developing the certification scheme is a review of current installers' certification schemes in Europe. Information was collected in a common format using a questionnaire which was sent to all coordinators of BUILD UP Skills I and II. Additional information was also collected from literature and internet searches.

DEFINITIONS

Throughout this document the following definitions apply:

Accreditation (according to CYS EN ISO/IEC 17011:2012)

Third-party attestation related to a conformity assessment body conveying formal demonstration of its competence to carry out specific conformity assessment tasks

Certification

Procedure by which a third party gives written assurance that a product, process or service (e.g. installation of PV systems) conforms to specified requirements

Competence (according to CYS EN ISO/IEC 17024:2012)

Ability to apply knowledge and skills to achieve intended results

REVIEW OF CURRENT QUALIFICATION/ CERTIFICATION SCHEMES IN EUROPE

This review has focused on the qualification/certification schemes on the skills for the placement of thermal insulation, installation of thermopanes and exterior sunshades and installation and maintenance of biomass heating systems. The nine following countries were studied:

- Slovakia
- Sweden
- Luxemburg
- Romania
- Estonia
- Netherlands
- Germany
- Greece
- Austria
- Cyprus

The information obtained for each of the countries listed above is detailed in the following sub-sections.

SLOVAKIA

GENERAL

Slovakia operates an accredited professional training for biomass boilers and ovens installers only. This training program is conducted by the Slovak University of Technology (SUT). SUT in Bratislava is one of the largest public universities in Slovakia providing bachelor, master and doctoral degrees in technical specializations. It has seven faculties including the Faculty of Civil Engineering, of Mechanical Engineering, of Electrical Engineering and Information Technology, of Chemical and Food Technology, of Architecture, of Materials Science and Technology, of Informatics and Information Technologies.

To obtain certification under the scheme for biomass boilers and ovens installers, the installer must attend a training course and pass an exam. The examination is provided by an examination committee established by the Ministry of Economy of the Slovak Republic. The certificates are provided by the Ministry of Economy.

In Slovakia a general legal framework exist which represents Act No. 309/2009 on promotion of renewable energy sources and high efficient cogeneration. A decree from the Ministry of Economy with number 133/2012 defines the scope of professional training, the scope of the examination, refers to the details on the establishment and activities of the examination boards as well as the content of the certificate for the installers. The minimum required content for the professional training is also defined in the annexes of the decree. The content of it as described is based on the information written in the Annex IV of the RES directive 28/2009/EU.

Only physical persons can apply for the certification and there is a list of names and contacts details of all the certified installers, published and constantly updated at the website of the Ministry of Economy. The whole process of certification is voluntary and no incentive schemes are provided for this process.

The first examination was conducted on the 2nd of October 2014 and until now, 34 installers of biomass boilers and ovens are certified. The list of the certified installers is available at the website of the Ministry of Economy.

CERTIFICATION PROCESS

In order to obtain certification the installer shall prove that he/she has the required educational background, professional experience and has passed the examination.

The installer shall provide official documents proving that he/she has completed secondary vocational education in a technical field or has completed secondary vocational education with

post-secondary studies in a technical field or has graduated from a university with technical background (for example civil or mechanical engineering).

The installer's professional praxis shall also be documented with official documents from the employers proving at least one year of professional experience in the energy sector. In the case the employer does not exist or is demised then a certificate of honour declaring the experience is accepted.

It is also essential in order for the installers to be certified to pass the examination which includes both practical and theoretical part but also attend the professional training consisting of theoretical and practical parts.

The certificate of the certified installer is valid for 5 years. The validity of the professional certificate of the installer can be prolonged once for the next 5 years provided that the installer will attend the training. The trainings are organised at least once a year by an accredited professional organisation in Slovakia.

The cost for certification is approximately 350€ per trainee including the training that has duration of 32 hours. The costs for the renewal of the validity of the certification of the installers have not been decided yet since the first renewals will be conducted during 2015.

TRAINING

The training could be provided by a legal person who has obtained accreditation for the educational program under a special legislation in the scope of training defined in decree with number 133/2012 and has proved that needed hardware for the practical training, including appropriate laboratory facilities is available.

During the accreditation procedure, the accreditation authority evaluates background documents of the potential applicant of accreditation including the information on training facilities and the equipment. The evaluation conducted should prove that the applicant for accreditation is able to provide specific training in certain areas and with specific equipment that fulfills the legal requirements in defined quality including the part of the practical training. During the accreditation process, the accreditation authority has to evaluate also the trainers including their professional praxis, training activities, references and background.

The installers who can attend the training course are the installers of biomass boilers and ovens provided that they submit a certificate stating their practical skills as
a)plumber, energy installation technicians or in similar disciplines focusing on installations of heating technology for candidates with secondary level education and

b)in the field of building services or similar disciplines for the applicant based on university level education.

The training has duration of 32 hours and the trainee has to pass a final examination which includes a practical and theoretical part. After the successful completion of the practical part, the applicant can move to the theoretical part of the examination which consists of at least 30 questions. The applicant is considered successful only if he/she concentrates at least 70% of correct answers. Only applicants that attend the training could take the examination.

The training material provided is available in hard copy, it is not available to the public and is given to the applicants after only the payment of the training fees.

The SUT which is the accredited body, is responsible for the training standards and their updates. The material was originally designed and prepared by experts contracted by SUT for this scope and was approved by the accreditation authority which is the Ministry of Education, Science, Research and Sport of the Slovak Republic and by the Ministry of Economy, satisfying that the material as developed, complies with the legal requirements. The participation in the training is mandatory for obtaining the certification.

AUDIT

The certification process does not include the audit component

REMARKS

Since the scheme only started in Autumn 2014 there is no experience on work quality improvement of the trained installers yet.

SWEDEN

GENERAL

In Sweden, the National Board of Housing, Building and Planning and an accredited body are responsible for the management of the qualification/certification process for the skills of the installation and maintenance of biomass heating systems.

The National Board of Housing, Building and Planning, which is a public national agency, regulates the certification scheme and the accreditation body which is a private organisation is responsible for the certification of the installers. The standards ISO/IEC 17024 Conformity assessment-General requirements for bodies operating certification of persons and ISO/IEC

17021 Conformity assessment-Requirements for bodies providing audit and certification of management systems are implemented by the accreditation body.

The installation and maintenance of biomass heating systems is regulated and controlled by the national accreditation body. The certification process is voluntary in Sweden and has started in 2013. All the certified installers are available online.

CERTIFICATION PROCESS

An installer in order to obtain certification has to provide proof for the vocational training and proof for examination. More specifically, the installer has to submit attestations of relevant professional experience and relevant training in the related area. The installer has to have 2 years of experience in the sector in order to be able to be certified.

As far as the training is concerned, the installer has to provide proof of successful examination but not proof of attendance to the training. The certification is valid for 5 years and has to be renewed after 5 years.

The cost for certification is approximately 1000Euro.

For the renewal of the certification the installer needs to submit proof of vocational training, proof of the examination taken as well as a minimum of 500 hours of working with the installation of biomass heating systems. The installer has to submit installation references in order to prove the 500 hours of working.

TRAINING

The installers that can attend the training are installers of solid fuel boilers and local space heaters using solid fuels. The duration of the course is depended on the training centre and the course consists both theoretical and practical parts. The successful candidate has to pass the final examination, practical and theoretical.

It is noted that in Sweden an installer is not obliged to attend the training, since it is on voluntary basis for obtaining certification. If he/she passes the examination that automatically secures that the installer has the knowledge and experiences needed for installing and maintaining the biomass heating systems.

The training centre has the authority to make available or not the training material, since this matter is not regulated. Despite of the decision of the training centre, the training material can be bought. A working group of experts is responsible for the updates/changes of the training material.

AUDIT

The certification process does not contain an audit component. Nevertheless, the certification can be recalled if the installer has customer complaints and is proven to be unfit for executing installations. The audits are realised by a certification body.

LUXEMBOURG

GENERAL

The Chamber of Skilled Crafts (Chambre des Metiers) is the public organisation in Luxemburg that is managing the qualification process for all skills referred in the We Qualify project.

The Chamber of Crafts is a professional chamber that regroups all artisan companies, namely those from the food sector, the fashion sector, healthcare, hygiene, the mechanical sector, the construction sector – building shell – finishing works, the construction sector – technical equipment, the communication sector, multimedia, arts and other activities, all in all 6.000 companies employing 80.000 people.

The Chamber of Crafts has been offering trainings for artisans of the construction sector on building energy-efficiency subjects for over 10 years now. The “training” department’s mission is to ensure the management of the apprenticeship contracts and the organization of the final apprenticeship exams. Thus the Chamber of Crafts plays a primordial role in this reference training system with which the “artisan career” starts. In the context of artisan apprenticeship, the Chamber of Crafts, the Chamber of Labour and the Ministry for National Education and Vocational Training have installed a specific structure, namely the apprenticeship counselling service whose role it is to give advice to the different parties of the apprenticeship and to watch over a smooth course of action of the on-the-job apprenticeship in a company.

The Chamber of crafts organizes the classes and exams leading to a master’s degree, which is the company management training per excellence. In the year 2013, the Chamber of Crafts will hold over 150 different continuing technical vocational trainings in the construction area. In 2011, the Chamber of Crafts was responsible for the management of a total of 1.899 apprenticeships and 832 candidates for a master’s degree. No less than 3.573 people have taken classes in a continuing vocational training.

In Luxemburg there is regulation covering the technologies of placement of conventional insulation/thermal insulation plaster, placement of external insulation, installation of high energy efficient thermopanés, installation of exterior sunshades and installation and

maintenance of biomass heating systems called Memorial A-n°96 dated 11th of May 2012 regarding energy performance.

The qualification for the skills of the placement of thermal insulation and thermopanels and exterior sunshades is delivered to physical persons only and is proofed by a trade test called (DAP/CAPT) or a master craftsman diploma obtained.

On the other hand, for the biomass installers the formation and certification is structured in a way to satisfy the requirements of the European Directive 200/28/EC regarding the promotion of the use of energy from renewable sources and can also only be delivered to a physical person. This skill is integrated in the master craftsman diploma and therefore mandatory. This scheme has been implemented in Luxemburg since 2012 and the list of certified installers is available in the internet.

CERTIFICATION PROCESS

In order to obtain certification the installer has to pass the trade test mentioned previously without submitting any certificates declaring his/her experience or training. Vocational training and validation of knowledge acquired by experience is recognised to be relevant training. The qualification obtained through the certification process is valid lifelong and there is no need to renew the certification.

The installer that wants to be certified must attend training in order to prepare for the trade test examination that usually costs around 650 Euro. This training will give the basis for the successful completion of the trade test and will lead to certification.

TRAINING

The centre that can provide the training should be accredited and accreditation is given by the Ministry of Education in Luxemburg. The training that leads to the certification of the installers has duration of 24 hours and only installers that have successfully passed the trade test can be certified. In order to attend the training the installers should have vocational training as installers (CITP: Certification for Technical and Vocational Initiation) or the corresponding VAE (Validation of Acquired Experience).

The installer needs to attend the training and has to pass the examination which includes a theoretical and a practical part in order to be qualified for certification. The training is mandatory and the material provided is not available to public.

ROMANIA

GENERAL

The National Authority for Qualifications (ANC) in Romania is responsible for managing the qualification process.

ANC is the National Qualifications Authority, being established in 2011 through the re-organisation of UECNCFPA and the National Qualifications and Adult Training Council (CNCFPA), according to the National Education Law no. 1/ 2011. According to the Government Decision no. 556/ 2011, ANC is a public legal entity, a specialized body under the coordination of the Ministry of Education. Its main three missions are:

1. Development of the National Qualifications Framework in accordance with the European Qualifications Framework for lifelong learning and administration of the National Qualifications Register;
2. Monitoring, assessment and control of the implementation of the National Qualifications Framework at the level of institutions within the national qualifications system;
3. Monitoring, assessment and control of the continuing education and training system.

Since 2012, the Ministry of Education, Research, Youth and Sports nominated ANC as the National Coordinator for the Adult Learning Agenda (NC AL) in Romania. In its capacity as NC AL, ANC collaborates with the Education, Audio-Visual and Culture Executive Agency (EACEA) for the implementation of the European Agenda for Adult Learning in Romania.

The qualification process covers the skills of placement of conventional insulation/ thermal insulation plaster, placement of external insulation as well as installation of high energy efficient thermopanes.

Two occupational standards for education and training were elaborated, approved and issued in 2014 in the framework of BUILD UP Skills QualiShell project for two occupations / qualifications recently introduced in the Classification of Occupations in Romania (COR Nomenclature) and in the Romanian Nomenclature for Classification of Qualifications, namely:

- Installer of opaque thermal insulation systems for buildings and
- Installer of thermal insulation fenestration systems.

These occupations/qualifications fully cover the placement of conventional insulation/thermal insulation plaster, of external insulation and the installation of high energy efficient thermopanes, while the skill of installation of exterior sunshades is partially covered by the second occupation/qualification.

The qualification process is voluntary in Romania and currently there is no national incentive scheme supporting the program, except from the operation of the Social Fund that is responsible for funding the organisation of all sorts of training and qualification programs. Since 2015, for the two mentioned qualifications, a certification scheme has been implemented. A register of the qualified persons will be developed in the framework of BUILD UP Skills Qualishell project.

CERTIFICATION PROCESS

In order to obtain certification you have to attend a qualification course and pass the final examination. The total duration of the course is 720 hours which includes by 2/3 practical lessons. The duration could be reduced by maximum 50% depending on the results of the initial evaluation performed at the beginning of the training programs in order to assess the skills of the installers acquired from other forms of training and experience. The installers do not have to prove their technical skills by submitting proofs of relevant professional experience and training. The vocational training and the validation of knowledge acquired by experience can be recognized as relevant training only if the competences are evaluated by an authorized centre.

The certificate acquired will be valid for lifetime and there is no obligation for the renewal of the certification. During the process the certified party signs a contract.

TRAINING

In order to become an accredited training centre, the centre needs to submit a folder to the relevant Authorisation Commission (under ANC). There are available technical specifications that the training centres and their laboratories need to satisfy. There is also a set of requirements applied for the trainers of the training centre as well.

The installers have to pass the examination at the end of the training. The training material will be available to the public at the end of the BUILD UP skills Qualishell project. One of the deliverables of the project will be the training material. The attendance of training is mandatory for installers that wish to obtain certification.

AUDIT

The Authorisation Commissions under ANC will coordinate the certification process and decide to include or not the audit component.

ESTONIA

GENERAL

Estonia operates an occupational qualifications system for placement of conventional insulation/thermal insulation plaster and placement of external insulation. This system is managed by the Sihtasutus Kutsekoda a private legal entity (foundation). The Estonian Qualifications Authority (trademark – Kutsekoda) as a private legal entity (foundation) was established in August 2001 in order to continue developing the occupational qualifications system launched by the Estonian Chamber of Commerce and Industry in 1997. Main functions of Kutsekoda: organising and coordinating the activities of sector skill councils; providing counselling and assistance for awarding bodies; keeping the register of occupational qualifications; organising consultation and training related to the occupational qualifications system; introducing the Estonian occupational qualifications system on the national and international level by creating conditions for the mutual comparison of occupational qualifications; organising the development and updating of occupational qualification standards on the basis of decisions made by sector skills council; organising the work of Europass Centre; organising the work of EPALE NSS in Estonia; acting as a national reference point for vocational qualifications and as NCP for EQF implementation. Estonian Qualifications Authority (Kutsekoda) does not provide any learning opportunities.

The certifying body in this process is the Estonian Association of Construction Enterpreneurs (www.eeel.ee). Only physical persons can apply for the certification and there is a list of names and contacts details of all the certified installers, published and constantly updated at the website <http://www.kutsekoda.ee>. The whole process of certification is voluntary and no incentive schemes are provided for this process.

To obtain certification under the scheme for placement of conventional insulation/thermal insulation plaster and placement of external insulation, the installer should attend a training course and pass the tests and exam.

The first certificate was issued in 1999 and a total of 94 678 (all areas) certificates have been delivered as of January 2015.

In Estonia there is no National law but, builders have to take into account the EU directive 2010/31/EC about the energy efficiency of the buildings.

CERTIFICATION PROCESS

There are two major categories of installers:

- Tööjuht – Construction Site Manager, level 5
- Ehitusjuht – Construction Site Manager, level 6

In order to obtain certification the installer shall provide proof of vocational training, proof of additional training in the related area, proof of completed examination and proof of earlier work experience in the relevant area. Earlier work experience on the area will be examined by checking if the necessary rights have been granted to the employer by using the Commercial Register etc. The installer's professional praxis shall also be documented with official documents from the employers.

Concerning years of experience for the Ehitusjuht category the installer should have the following requirements regarding education and experience if the installer has acquired relevant specialization:

- 3+2 years higher education, then at least 2 years of work experience is needed
- 4 years professional higher education, then at least 3 years of work experience is needed
- 3 years BA, then at least 4 years of work experience is needed

If the installer has acquired professional education that doesn't correspond to the relevant specialization, then the installer should satisfy the following requirements regarding education and experience:

- 3+2 years higher education, then at least 3 years of work experience is needed
- 4 years professional higher education, then at least 4 years of work experience is needed
- 3 years BA, then at least 5 years of work experience is needed

If the installer has acquired an education in other areas, then the installer should satisfy the following requirements regarding education and experience:

- 3+2 years higher education, then at least 5 years of work experience is needed
- 4 years professional higher education, then at least 6 years of work experience is needed
- 3 years BA, then at least 7 years of work experience is needed

If the installer has acquired technical engineering on vocational secondary education, then the installer should satisfy the following requirements regarding education and experience:

- based on at least on 3 years studies, then at least 7 years of work experience is needed

Concerning years of experience for the Tööjuht category the installer who has acquired specialized vocational education and has the occupational qualification certificate of previous level, the installer should have the following requirements regarding education and experience provided that the installer has acquired relevant specialization:

- at least 3 years of work experience is needed.

If the installer has previously acquired Ehitusjuht III occupational qualification certificate (previous version on Ehitusjuht, level 6 certificate, but lower on requirements), the installer should the following requirements regarding education and experience:

- at least 2 years of work experience is needed

The cost for certification is approximately 271,20€ per trainee and is valid for 5 years. The certification can be renewed after a period of another 5 years and the cost is 166,80€. The installer has to provide the installation references, to prove that the installer has been working professionally for at least 2 years during the validation of the certificate. Additionally the installer has to show proofs of at least one additional training. The installer has to attend the mentioned training not later than 1 year after the end date on the last certificate.

TRAINING

The training should be provided by a training centre. Curriculum has to be developed together with the awarding body and has to be approved by the awarding body. In case of Ehitusjuht the training centre can only be at a professional higher educational school, in case of Tööjuht it can also be located at the vocational schools and at other adult training providers.

As mentioned before the duration of the training is 1 month and the participant should pass a written exam. It is mandatory to attend the training in order to take part in the final examination and obtain the certificate. The material is in hardcopy and electronic version. It is not available to public and it is not possible to buy it. Finally a group of experts is responsible to monitor and update the training standards and no audit is involved in the certification process.

AUDIT

The Estonia certification process doesn't include an audit component.

NETHERLANDS

GENERAL

Netherlands operates a certification system for mechanical and electrical systems (buildings). This system is managed by the KvINL (KKwaliteit voor Installaties Nederland) a private legal entity. KvINL is involved with exploitation and maintenance of certification schemes and is certified according to ISO/IEC 17065 from Raad Voor Accreditatie (www.rva.nl).

The certification process will cover the installation and maintenance of biomass heating systems. This scheme is planned to be published in 2015. It will be delivered both to installers and installation companies and is mostly voluntary except some renewable energy technologies, for which is mandatory. More information is available at <http://www.kvinl.nl> and <http://www.qbisnl.nl>

In Netherlands there is no National law but, builders have to take into account the EU RES directive.

CERTIFICATION PROCESS

In order to obtain certification the installer or installation's company shall provide proof of examination, documents attesting company's existence, quality process handbook, documents attesting company's experience with several techniques. Also proof of relevant professional experience is required. To obtain certification under the scheme, the installer should attend a training course and pass theoretical and practical exams.

Both parties should sign an agreement. The certification is valid for 5 years. The certification can be renewed after a period for another 3 years. The certified party has to prove that it has been active in the field since obtaining the certification by providing installation references.

TRAINING

The training should be provided by a training centre. The process is described in detail at the following website (available only in Dutch)

http://kvinl.nl/fileadmin/user_kbi/RES/aanvraagformulier-accreditatie-examen.pdf

As mentioned before the duration of the training is 1 to 3 days and the participant should pass theoretical and practical written exams. It is not mandatory to attend the training in order to take part in the final examination and obtain the certificate.

The material is available both in hard copy and electronic version. It is not available to public but it is possible to buy it. Finally an independent working group of experts is responsible to monitor and update the training standards and audit is involved with the certification process.

AUDIT

The audit focuses on the internal quality system of the company including the sampling of relevant building projects. The audits are realized by a third party body, during the installation

and after the installation are achieved. Each certification body has its own procedures for doing audits within the scope of the certification schemes.

GERMANY

GENERAL

Germany operates a certification system for master craftsmen (<http://www.zdh.de/en/vocational-education-and-training.html>). Training is provided by chambers of skill crafts, trade associations and private companies which operate their own training centers. This master craftsmen system is mandatory for the building sector and it is covered by the Energy Saving Ordinance (EnEV) and the renewable energy heat law.

Germany was involved to the BUILD UP Skills I project. More than 315 further education trainings in the sector of energy efficiency and renewable energies were provided. For the results of BUILD UP Skills I project more information can be found at the following website: http://www.bauinitiative.de/fileadmin/user_upload/bilder/Dokumente/Qualergy2020-The-German-Project.pdf.

The only certification process in place is for building energy consultants https://www.energieeffizienz-experten.de/sie-sindenergieeffizienz-experte/weitere-informationen/#ifmulticontent_c41330-1).

GREECE

GENERAL

Greece operates an occupational qualifications system but at the moment does not cover the 5 related skills. This system is managed by a Public Organisation for the Certification of Qualifications and Vocational Guidance (EOPPEP). EOPPEP develops and implements the National Accreditation and Certification System for non-formal education, including initial and continuing vocational training and adult education, and provides scientific support to Vocational Guidance and Counseling services in Greece. Its principal fields of activity and responsibility are:

- Accreditation/Licensing of Providers of non-formal education (Free Studies Workshops (EES), Private Vocational Training Institutes (IIEK), Vocational Training Centers (KEK), Special Centers for vulnerable social groups)
- Accreditation of Occupational Profiles
- Accreditation of Curricula (in terms of standards and specifications)

- Development and implementation of the National Qualifications Framework (NQF) in correspondence with EQF & National Coordination Point for EQF (NCP)
- National Reference Point for ECVET & National Centre for EUROPASS in Greece
- Equivalencies & Occupational Rights for VET education title holders
- Development of the National System for the Certification of Qualifications
- Accreditation of Vocational Training & Certification of Vocational Training Institutes (IEK) graduates
- Certification of qualifications of "Trainers for candidates for car & motorcycle driver's license"
- Certification of teaching qualification of Trainers for Adults of non-formal education
- Licensing of Providers for the certification of qualifications.

The certifying body in this process is EOPPEP. The examinations for the acquisition of the certification could be implemented by other bodies accredited by EOPPEP against ISO/IEC 17024. Only physical persons, being technicians, craftsmen, installers of systems, can apply for the certification. The whole process of certification will be mandatory, when it will be applied (this is an output of the BUILD UP Skills UPSWING Project for Greece). None of the 5 technologies are covered by this qualification/certification process. These technologies will be defined in the frame of the BUILD UP Skills UPSWING project (through consultations with the relevant public bodies). BUS UPSWING addresses the Insulation technicians, Aluminum and metal constructions craftsmen, and the Installers/maintainers of burners (the 1st and 3rd categories of professionals are similar to this project). In the near future an incentive scheme will be established provided that this is accepted by all stakeholders.

AUSTRIA

GENERAL

Currently the following training certifications (further education for installers) are available in Austria:

- certified heat pump installer,
- certified solar heat installer and planner,
- certified photovoltaic installer and planner,
- certified biomass heating installer.

Trade authorities in different Austrian Provinces (Länder) are responsible for the management of the qualifications. For the certifications process, other entities are in charge on behalf of the Federal Ministry of Science, Research and Economy.

In general the trade authorities provide trade licenses for qualifications mentioned above depending on the qualifications and requirements needed (e.g. education, apprenticeship and other requirements). The Chamber of trades and commerce on the other hand represents the interests of Austrian companies, supports different services and consults, supports and guides various educational institutions.

To get a trade licence for specific crafts in Austria you have to pass a dual apprenticeship and master training after completing the nine-year compulsory education (mandatory vocational training). The training starts with an apprenticeship contract between company and apprentice. The trainees receive a practical training in the enterprise and theoretical knowledge in vocational school. The school falls under the jurisdiction of the Federal Ministry for Education, Arts and Culture (BMUKK) and the craftsmen profession under the particular guild of the Economic Chamber of Austria. The duration of the training depends on the chosen profession. Basic skills for renewable energy technologies are taught in the correlating apprenticeships and master trainings in Austria.

The Austrian accreditation body in accordance with the Accreditation Act (AkkG) is the BMWFJ and there is a link with the international accreditation activity.

The certification of heat pump installers, solar heat installers and planners and certified photovoltaic installers and planners is carried out according to ISO/IEC 17024. The Austrian Institute of Technology (AIT) is the accredited personal certification body that conducts the certifications and is part of the Austrian Research and Examination Centre. Furthermore the AIT is accredited by regulations from BMWFJ (EN ISO/IEC 17024). On the other hand, the training for the “Certified biomass installer” is carried out by the Biomass Association.

CERTIFICATION PROCESS

In order to obtain certification the participant should:

- Participate in an educational training in the technology concerned
- Pass the final exam
- Provide proof of relevant education or professional experience in the related field
- The employer of a certified installer must be a licensed enterprise offering the planning and/or the installation of the concerned technology and/or the installer himself is the owner of the licensed enterprise.
- Provide specific data about reference plants (one to three depending on the technology)
- The reference plant must be mainly designed by the person who wants to obtain the certificate.
- A sampling check of the plants is done by the certification body.

The certified party should sign an agreement. The cost for certification is approximately 260€ per trainee and is valid for 3 years. The certification can be renewed after a period of another 3 years and it costs 200€.

In order to renew the certificate the installer has to attend a further training with duration of 1 to 8 days and additionally to prove:

- Activity in the relevant field
- Participation in further trainings to keep up to date.
- The certification body must be informed of any recordings of objections about the quality.
- At the end of the certificate's validity, the installer needs to fulfill the same requirements as for obtaining the certificate.

TRAINING

In Austria the training is provided by an accredited training centre. In order to become an accredited training centre, the centre should:

- Provide proofs of relevant training equipment, laboratories and tools
- Qualified staff
- Content of the training must be approved by the certification body
- The certification body audits the training centers every year and assesses the documentation and data about the staff of the training centre.

AUDIT

The installations are audited by a certification body. The audits are performed during the works or after the realization of the installation based on complaints and installation references. The audit results may lead to a suspension or withdrawal of the certificate.

CYPRUS

GENERAL

The organisation responsible for the management of the qualification/ certification process in Cyprus is the Energy Service of the Ministry of Energy, Commerce, Industry and Tourism, which is a public department.

The Energy Service of the Ministry of Energy, Commerce, Industry and Tourism has the overall responsibility of Energy in Cyprus and specifically for:

- Monitoring and coordinating the supply and availability of sufficient energy capacity for domestic needs.

- Monitoring and participating in the formation of the European Policy for energy issues.
- Suggesting ways for the implementation of the European Acquis, assists in the preparation of Laws, Regulations, Rules etc and implements programmes for their promotion.
- Preparing and implementing programmes for energy conservation, the promotion of renewable energy sources (RES) and the developing of technologies for the utilization of RES
- Assisting the Government in the formation of the national energy policy for Cyprus in coordination with all other bodies involved.

The department has not implemented yet any standard for the qualification/certification process followed.

The technology covered by the qualification/certification process is the installation and maintenance of biomass heating systems in Cyprus. The legislations and regulations covering the above mentioned technology that are in place in Cyprus are the Law on promoting and encouraging the use of Renewable Energy Sources (N. 112(I)/2013), the Law and Amendments regarding Energy Performance of Buildings (N. 210(I)/2012) and several other regulations.

The certification can only be delivered to physical persons, it is a mandatory process in Cyprus and it not linked to any incentive or other schemes. There is no available list of certified biomass installers yet since the first regulation regarding the certification of installers of small scale renewable energy systems was adopted in January of 2014.

CERTIFICATION PROCESS

The installer, in order to be certified, needs to submit proof of vocational training, proof of examination, a copy of his/her identity card and a proof of payment for the registration fees.

The installer, in order to be qualified for certification, needs to prove his/her technical skills by providing proofs and attestations of relevant professional experience as well as the relevant training in the related area. The installer needs also to provide installation references, at least one reference and to have one to five years of experience depending on the academic qualification already obtained.

The installer that wants to proceed with certification needs to provide not only proof of attendance to the training organized but also proof of successful examination. Vocational training and validation of knowledge acquired by experience is not considered as relevant training.

The certification of the installers is valid for five years. When the five years period is over, it is mandatory for the installers to attend a short training programme on new technologies and techniques in order to be able to renew the certification. However the certified installers are

obliged in any case to renew their licenses every two years by paying a fee of 100 euro plus some taxes.

All the installers sign an application so as to be registered to the appropriate registry.

The cost for the whole certification process for each installer is approximately 200 euro.

The installer who wants to renew the certification has to follow a certain procedure for the renewal that includes:

- Informing the competent authority in writing about his/her wish to renew the certification
- Ensuring that all registration requirements are respected
- Complying with any directives issued by the competent authority
- Paying the fees required for the renewal of the certification.

The installer will need to attend a further training of 10 hours every five years in order to be able to renew his/her certification.

TRAINING

In case the training is provided by a training centre, the centre in order to become accredited, needs to have the necessary infrastructure, facilities for practical training, laboratory equipment and instruments as well as to have the infrastructure in place to provide the basic training as described in the national legislation and regulations. In addition, the personnel of the training centre must be qualified in organizing technical training programs and comply with all applicable directives, standards and all the rules of safety and health.

The training centers need to provide information to the competent authority about the laboratories and equipment in their premises in order to be approved by the competent authority as a suitable place for conducting trainings. As far as the trainers are concerned, the trainers should be fluent in Greek and have proven experience and expertise on the field of technical training programs.

Blue-collar workers and installers in technical occupations in construction as well as other related sectors for the installation and maintenance of energy saving and renewable energy systems in buildings, are the most suitable candidates for attending the training program provided leading to the certification of the installers. The duration of the training is around 40 hours and the installer has to submit all the relevant certificates for his/her academic qualifications as well as proofs of his/her professional experience.

The theoretical part of the training includes reference to all the relevant European and national legislation, European and international standards, available systems and technologies,

installation requirements, proper operation requirements, maintenance, practical tips and troubleshooting guides. The practical part includes installation of the relevant system in especially designed workshops.

In order to be certified, the installer has to attend the training and pass the final examinations consisting of both theoretical and practical part and has to achieve a score on both parts at least 70%. An installer cannot take the examination unless he/she has attended the training course.

The training material is available in hard copy and electronic forms for the trainees only and cannot be bought at the moment. The material including the training standards are determined and updated by the competent authority which in Cyprus is the Energy Service of the Ministry of Commerce, Industry and Tourism.

CONCLUSION

This review has found that different qualification schemes exist for the European countries. Each country manages differently the qualification scheme for the skills referred in the WE QUALIFY project, with various procedures and processes.

The skill about the installation and maintenance of the biomass heating systems seems to be more advanced in terms of the development and certification of the training courses for the installers due to the enforcement of the European Directive 2009/28/EC. Many countries are in the process of the development of a qualification scheme for the biomass installers through funded projects that are expected to have results during 2015.

The schemes for the other two skills concerning the placement of thermal insulation and installation of thermopanels and exterior sunshades are underdeveloped in most of the countries in Europe or are covered by a generic craftsman qualification scheme.

Despite the lack of certification schemes for Skills 1 and 2, this review has confirmed that there are training courses and training centers that could be used to develop and deliver training courses for the installers. Some synergies have also emerged within existing schemes. For example there is a general requirement that the installer has relevant training and experience and that this is demonstrated through both written and practical examination in most of the countries.

It can be concluded that the We Qualify training course and examination can provide the basis for implementation to other countries with some adjustments depending on the requirements in those countries.