

Development of a European Qualifications Framework in Timber Construction (EQF-Timber)



Vocational education and training in timber construction Raising the profile of qualifications



Project consortium

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General remarks

EQF/NQF and EQR/NQR

The terms EQF/NQF, the English-language acronyms for the European/National Qualifications Framework, will be used in all language versions of this document, i.e. in the German, English and French publications.



Diversity and gender equality are important to us. We would like to point out that the present publication uses the generic masculine as well as gender-neutral and feminised forms of language to improve the readability of texts and tables. In any case, the chosen expressions do not apply to any specific gender.

Interactive document

This PDF document contains interactive elements. Cross-references or external links are created as jump marks.

Vocational education and training in timber construction

Raising the profile of qualifications

Development of the European Qualifications Framework in Timber Construction (EQF-Timber)

Preface

Over the past 30 years, building with wood has undergone considerable development in parts of Europe. The economic importance of timber construction and its social recognition have increased. The main reasons for this are the existence of well-organised companies, the constant development of qualitative and technological standards and a high level of education of employees. In order for timber construction in Europe to continue to prosper and maintain quality standards, the sector is dependent on well-trained skilled workers.

To develop the existing forms of vocational education and training in European timber construction, six European countries have joined forces in a partner consortium. Together they launched the project “Development of a European Qualification Framework in Timber Construction (EQF-Timber)”.

The aim of EQF-Timber is to make vocational education and training (VET) and its content more transparent in European countries and thus more comparable. This helps both carpenters to find employment and companies in their search for employees within Europe.

We would like to thank our partner organisations and the employees involved in the work for this project for their support in creating EQF-Timber.

The project was financially supported by the EU programme Erasmus+ and Movetia, the Swiss national agency for the promotion of exchanges and mobility in the education system, for which we would like to express our sincere thanks.



Peter Aicher
President, Timber Construction Europe

Chapter 1

Timber construction and vocational education and training systems in Europe

Diversity of European vocational education and training systems

It can be assumed that general vocational education and training (VET) is being involved in every European country. These developments are not static; they show fundamental differences between each other and are in a state of flux to a greater or lesser extent in terms of structure and content, depending on their respective starting points.

The Erasmus+ project “Progress through collaboration – Advancing education and training in timber construction” (September 2016 to February 2019) shed some light on this situation. The aim of that project was to record, structure and make transparent the occurrence and spread of general education systems in Europe.

The collected data showed that the education systems implemented in Europe are not uniform. Rather, a multitude of historically evolved variants and characteristics can be identified. In many cases, different systems exist side by side in the countries themselves.

Against this background, the information collected on the education systems was examined more closely with regard to comprehensible structural features. This was done by using the structural model of VET systems developed by Prof. Dr Marius R. Busemeyer, University of Konstanz, and the available country-specific VET systems were assigned to the four clusters shown in Table 1 with connecting classification features and similarities:

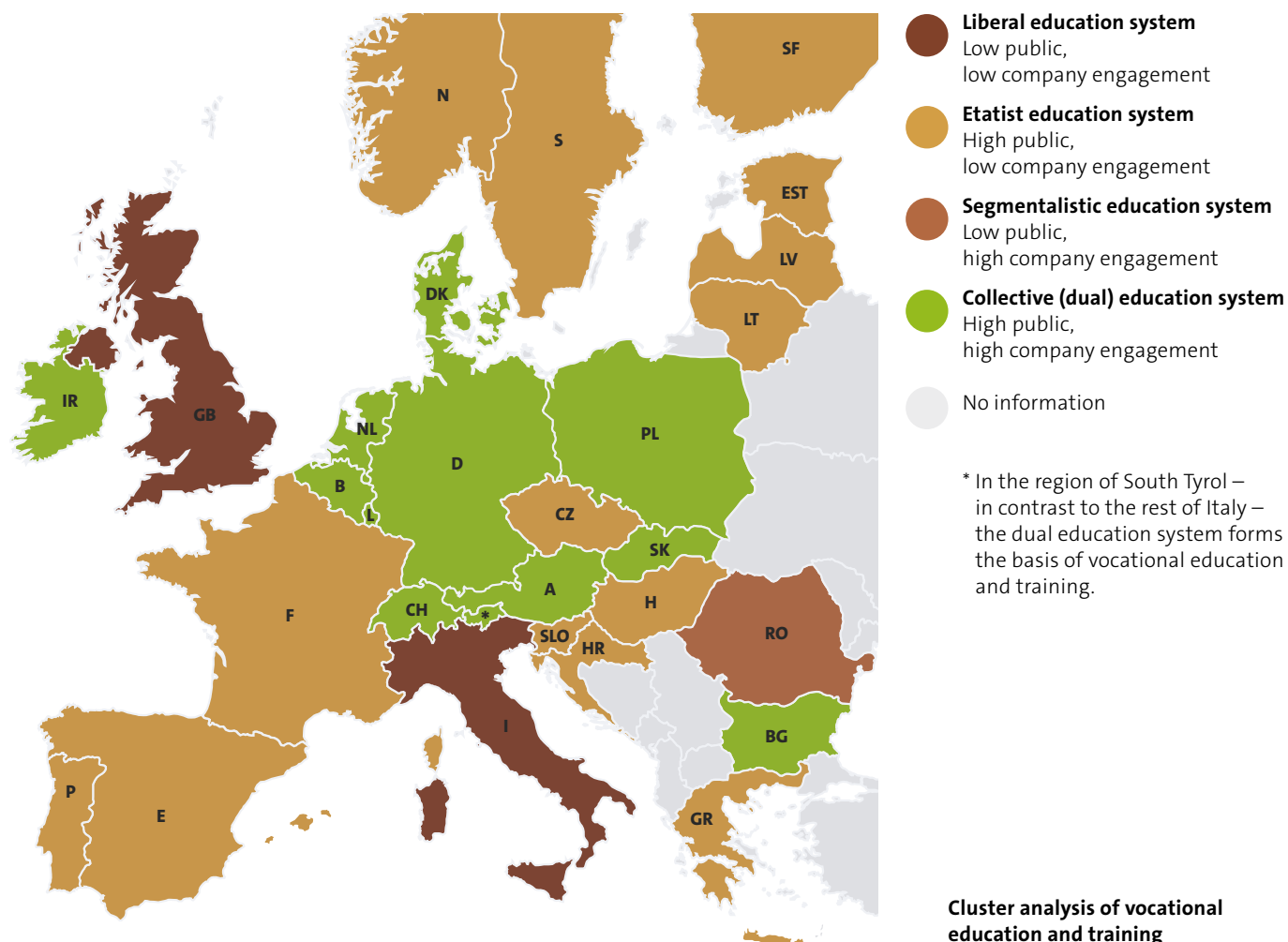


Table 1:

Typologies of education systems

The liberal education system

Example: Great Britain



is characterised by low public and company commitment and a high level of individual responsibility in the acquisition of the competences and qualifications required for the job market.

The etatist education system

Example: Sweden



is characterised by a high public and low company commitment to vocational education and training and would like the fundamental professional education to be achieved primarily through the existing school system.

The segmentalistic education system

Example: Romania



is characterised by a low public but high/higher company commitment.

The collective (dual) education system

Example: Central Europe



is characterised by both a high public and company commitment and a high permeability of the education system.

Source:

Busemeyer, M. R., & Trampusch, C. (2012). Introduction: The Comparative Political Economy of Collective Skill Formation.

In: M. R. Busemeyer & C. Trampusch (eds.), *The Political Economy of Collective Skill Formation* (pp. 3-38). Oxford, New York: Oxford University Press.

Vocational education and training in European timber construction

In addition to determining the diversity of the general cross-industry VET systems in the member states and individual associated countries of the European Union, it was necessary to understand each country's education and training requirements for becoming a carpenter/timber construction professional. To this purpose, further investigations were carried out.

The central focus was on the question of which countries offer basic education and training in carpentry/timber construction with the corresponding relevant determinants. The extent to which the nominally stated implementation of a VET system in carpentry/timber construction is backed by legal provisions and framework conditions, training content and by the scope of skills and knowledge taught was therefore analysed.

A look at the spectrum of countries shows that basic education in timber construction and carpentry takes place in only about half of the countries of the European Union. Further education and training measures are offered to an even lesser extent. As mentioned above, knowledge, skills and competences are imparted in different education systems and structures and to different extents.

Even though a conclusive analysis and qualification of the collected data has not yet been carried out for all countries, after initial assessment and evaluation it can be assumed that VET in carpentry and timber construction is carried out in formal training courses in 15 EU countries and Switzerland. In nine of these countries, including Switzerland, this training occurs in the form of dual training, and in all the other cases as etatist education.

Vocational education training as challenge and opportunity

Conclusions can certainly be drawn from the results of the study on the spread of VET systems in timber construction and its economic importance in individual countries. There is much to suggest that the state of development of VET in timber construction also reflects, to a certain extent, the market significance, characteristics and development prospects of timber construction. If this statement is accepted, it also means that the creation of well-developed formal education courses not only promotes the timber construction industry, but also makes a positive contribution to the economic development of a country.

This finding and other considerations led to the development of the European Qualifications Framework in Timber Construction (EQF-Timber) after the conclusion of the study. This framework serves as a basis for the targeted development of European VET in timber construction.

Chapter 2

The European Qualifications Network (EQF*)

* The acronym EQF, which is used in all published language versions, was chosen as the abbreviation of the term European Qualifications Framework.

Comment:

As the content of this chapter is largely based on the European Qualifications Framework, most of the text and tables are taken from it. <https://europa.eu/europass/de/european-qualifications-framework-eqf>

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

The EQF covers all types and all levels of qualifications and the use of learning outcomes makes it clear what a person knows, understands and is able to do. The level increases according to the level of proficiency, level 1 is the lowest and 8 the highest level. Most importantly the EQF is closely linked to national qualifications frameworks, this way it can provide a comprehensive map of all types and levels of qualifications in Europe, which are increasingly accessible through qualification databases.

The EQF was set up in 2008 and later revised in 2017. Its revision has kept the core objectives of creating transparency and mutual trust in the landscape of qualifications in Europe. Member States committed themselves to further develop the EQF and make it more effective in facilitating the understanding of national, international and third-country qualifications by employers, workers and learners.

The EQF works together with other European and international instruments supporting the recognition of qualifications.

- The Council Recommendation of 26 November 2018 on promoting automatic mutual recognition of higher education and upper secondary education and training qualifications and the outcomes of learning periods abroad refers to the EQF as a way to foster transparency and build trust between national education and training systems.
- Directive 2005/36/EC addresses the recognition of professional qualifications in the EU, enabling professionals to move across borders and practise their occupation or provide services abroad.⁵
- The Lisbon Recognition Convention is an international agreement administered by UNESCO and the Council of Europe that allows for the recognition of academic qualifications in Europe and beyond.
- The EQF is compatible with the Qualifications Framework for the European Higher Education Area and its cycle descriptors. The framework was agreed by education ministers of the intergovernmental Bologna Process in 2005.

What is the referencing process?

The EQF Recommendation invites Member States to reference their national qualifications frameworks or systems to the EQF, in order to establish a clear and transparent relationship between their national qualification levels and the eight EQF levels. Member States are recommended to review and update, when relevant, the referencing of the levels of the national qualifications frameworks or systems to the levels of the EQF.

Each country wanting to relate its national qualifications levels to the EQF has to prepare a detailed referencing report that follows the ten EQF referencing criteria. National referencing reports are presented to the EQF Advisory Group which endorses them if they satisfy the referencing criteria.

Once national frameworks are referenced to the EQF all newly issued qualifications (e.g. certificates, diplomas, certificate supplements, diploma supplements), and/or qualifications databases should in principle contain a clear reference to the appropriate EQF and NQF level.

Level	Knowledge	Skills	Responsibility and autonomy
EQF 1	– Basic general knowledge	– Basic skills required to carry out simple tasks	– Work or study under direct supervision in a structured context
EQF 2	– Basic factual knowledge of a field of work or study	– Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools	– Work or study under supervision with some autonomy
EQF 3	– Knowledge of facts, principles, processes and general concepts, in a field of work or study	– A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	– Take responsibility for completion of tasks in work or study – Adapt own behaviour to circumstances in solving problems
EQF 4	– Factual and theoretical knowledge in broad contexts within a field of work or study	– A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	– Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; – Supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities

Comment:

This table has been taken from:
https://www.qualifikationsregister.at/wp-content/uploads/2019/09/EQF-Interactive_Brochure_EN.pdf
<https://europa.eu/europass/en/description-eight-efq-levels>

Level	Knowledge	Skills	Responsibility and autonomy
EQF 5	<ul style="list-style-type: none"> – Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge 	<ul style="list-style-type: none"> – A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems 	<ul style="list-style-type: none"> – Exercise management and supervision in contexts of work or study activities where there is unpredictable change – Review and develop performance of self and others
EQF 6	<ul style="list-style-type: none"> – Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles 	<ul style="list-style-type: none"> – Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study 	<ul style="list-style-type: none"> – Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts – Take responsibility for managing professional development of individuals and groups
EQF 7	<ul style="list-style-type: none"> – Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research – Critical awareness of knowledge issues in a field and at the interface between different fields 	<ul style="list-style-type: none"> – Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields 	<ul style="list-style-type: none"> – Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches – Take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams
EQF 8	<ul style="list-style-type: none"> – Knowledge at the most advanced frontier of a field of work or study and at the interface between fields 	<ul style="list-style-type: none"> – The most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice 	<ul style="list-style-type: none"> – Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research

The European Qualifications Framework is a transnational cross-system reference framework. This means that it describes knowledge, skills and competences independently of existing education systems, place and method of delivery, and so allows the comparison of the actual abilities of individuals. The EQF thus creates the basic prerequisites for cross-border mobility of learners and workers as well as for lifelong learning in permeable education systems.

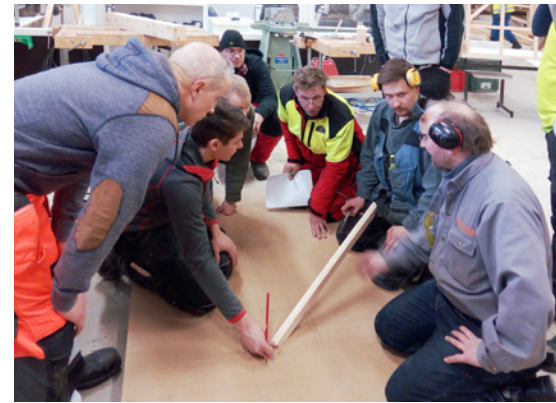
As of September 2021, 35 countries are linked by national qualifications frameworks. The qualifications of individuals can therefore be compared directly and effectively throughout most of Europe.

However, a direct matching of the specific qualifications within Europe has not yet been possible for many industries. This is certainly true for European timber construction, prompting the development of an occupation-specific reference frame analogous to the general European Qualifications Framework in order to help determine and compare the qualifications specific to timber construction. This reference framework was developed within the project “Development of a European Qualifications Framework in Timber Construction (EQF-Timber)”. Just as the general qualifications framework forms a reference and meta framework for the development of general national qualifications frameworks (NQF) across areas of education, the European Qualifications Framework in Timber Construction can assume the function of a reference framework for the development and alignment of an industry-specific national qualifications framework in timber construction and serve as orientation for the classification of the various competence levels from the perspective of the individual countries.

Sources and further information:

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

https://www.qualifikationsregister.at/wp-content/uploads/2019/09/EQF-Interactive_Brochure_EN.pdf



Chapter 3

The European Qualifications Framework in Timber Construction (EQF-Timber*)

Framework conditions

The objective of the development of the European Qualifications Framework in Timber Construction is the reduction of barriers in the entire European education area. This is generally the objective in the development of any qualifications framework. The aim is to render education systems and qualifications in the European Union transparent, comparable and permeable. As the theory goes, the better comparability of qualifications will stimulate mobility within the EU.

However, the self-determination rights of the individual countries must also be taken into account when developing Europe-wide qualifications frameworks. In order to allow and maintain subsidiary action, the European Qualifications Framework in Timber Construction presented below was neither designed as a conclusively finalised education and training structure nor as a complete reflection of the education and training situation of all European countries. Rather, the underlying structure was developed to reflect the activities and processes relevant to timber construction. These activities and their chronological sequence in the building of a timber structure are similar in all European

countries, but differences can arise through the approach in design, production depth and the development of production technology. The construction of a handcrafted roof structure requires different qualifications in certain areas than for a timber structure built using computer-controlled production facilities with a high degree of prefabrication.

Similar to the European Qualifications Framework as a meta-framework for the different NQFs, EQF-Timber can be used as a reference framework and orientation for the formulation of NQF-Timber. It is important, however, to allow the structuring levels and final learning outcomes to be reduced or extended. Despite its flexibility with respect to both structure and content, such a model framework at the European level offers the opportunity for the development of comparable national qualifications frameworks.

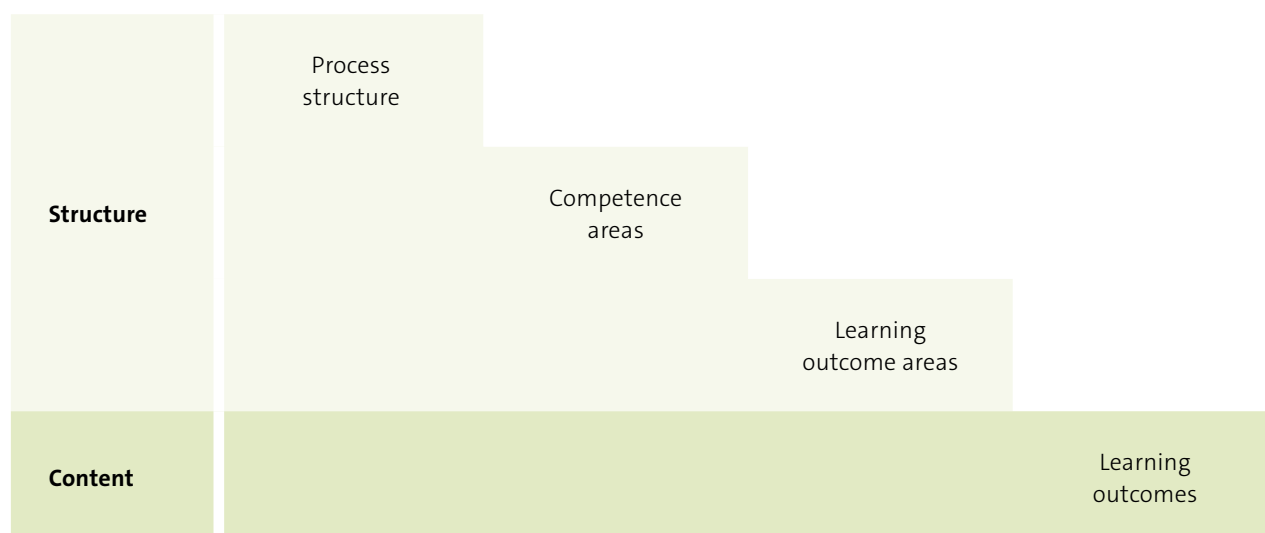
As an example, the practical implementation of a comparison between the content of a national qualifications framework for timber construction and EQF-Timber as a reference framework is shown on pages 46/47.

*The acronym EQF, which is used in all published language versions, was chosen as the abbreviation of the term European Qualifications Framework.

Structure

As mentioned above, the structure of EQF-Timber is based on the fundamental working steps in timber construction and the specialist knowledge required for building with timber. It was decided keep the uppermost level of the structure small, as the structure width is expected to increase over time. The content of this level was called “process structure”, as it is informed by the process sequences in timber construction. The level has four sections: organisation, production, realisation and material. In this context, the material can be considered a cross-section area, as it cannot be assigned a specific position in the process sequence. To a certain extent, the situation is similar for organisation, which is relevant at the beginning of the process but also steps in at various points throughout the process sequence.

In the second structure level, the so-called competence areas are defined, which represent the classification of the most important delimitable areas within one area of the process structure. The competence areas are informed by the main work and knowledge areas in the field of timber construction. The next level, the learning outcome areas, subdivides the competence areas into sections which are defined in the fourth level as the detailed learning outcomes.



Content and application

The learning outcomes were formulated based on the previously defined learning outcome areas and will serve as the basis for the development of the national qualifications frameworks in timber construction. If the presented structure for the development of a national qualifications framework is used, it is also necessary to formulate so-called descriptors. These were not defined in the creation of EQF-Timber, as the descriptors serve to define the actual EQF and NQF levels.

As the classification of these levels and the content contained within is executed in different ways in different countries and thus considerable differences can exist, the descriptors are developed at the national level.

Descriptors describe how deeply the learning outcomes have been absorbed and can be applied. They classify the description of the content of the learning outcomes into the areas of knowledge, skills and competences. These areas are defined as follows:

Knowledge	Result of the digestion of information through learning. Knowledge describes the entirety of facts, principles, theories and the practical application in a work or study field.
Fertigkeiten	Ability to apply knowledge and know-how to carry out tasks and solve problems with cognitive skills (logical, intuitive and creative thinking) and practical skills (workmanship and use of methods, materials, tools and instruments).
Competences	Proven ability to use knowledge, skills and personal, social and methodical abilities in work and study situations for professional and/or personal development – assumption of responsibility and independence.

By separating the individual learning outcomes into the three descriptor areas, an accurate classification within the EQF/NQF can be achieved in the majority of cases. The matching of qualifications to the individual levels of the respective qualifications framework can thus be carried out according to the national framework conditions.

The relevant national organisations can therefore decide by themselves whether the education to become a master carpenter corresponds to level 6 or 7 of the national qualifications framework, for example.

Formal degrees

The presented qualifications framework EQF-Timber is not just based on the processes in the construction of timber structures, but was also developed to consider various formal vocational degrees. Despite being used in various countries, the qualification levels of journeyman, foreman, site foreman and master (Geselle, Vorarbeiter, Polier, Meister in Germany) that were considered in the development of EQF-Timber do not have matching counterparts in all countries of the European Union.

As each of these qualification levels are partially based on each other, they offer a suitable vertical structure for the entire learning content. In European comparisons, however, the deciding factors are the EQF/NQF levels that are reached at a specific point in the education.

The formal qualifications also show that the qualifications framework for timber construction is initially concerned only with the technical school education. This is the case because national specifications on learning content and examination requirements already exist for this area.

In the area of higher education, the design of the curricula is the responsibility of the higher education institutions themselves and does not present a uniform picture, either at the national or the international level. The development of a qualifications framework for timber construction which takes into account higher education (EQF levels 6 to 8) is therefore a much more complex undertaking and would have to be carried out separately with the participation of as many higher education institutions as possible. In addition, there are numerous opportunities in the respective national VET systems to achieve a higher classification through further or supplementary training. There are numerous possible combinations and for this reason they were not considered in the development of this qualifications framework.

With respect to using the European Qualifications Framework in Timber Construction, it should be noted that the assessment and classification of qualifications can be carried out irrespective of whether the skills have been acquired formally, non-formally or informally – a rule that is also valid for the general EQF. The only decisive factor are the learning outcomes. Where they were acquired (e.g. as part of a school- or company-based education or combined education), whether they had a specific duration or form of education, or whether they were acquired informally (learning by doing) is irrelevant for the proof of competence.

This ensures that the qualifications of an individual or a training course can be determined in a neutral procedure without requiring time-consuming cross-checking. As the learning outcomes are the decisive criterion, no discrimination or favouritism towards any education system can occur.



Chapter 4

EQF-Timber: Tabular overview of the qualifications

Introduction of the qualifications

The qualifications framework for handcrafted timber construction is divided into individual qualifications I to IV which are distributed across levels 3 to 7. A corresponding overview can be found on page 23.

The left-hand column shows the levels of the qualifications framework in analogy to the European Qualifications Framework; in the central column the qualifications considered by EQF-Timber are assigned to these levels.

As mentioned in Chapter 3, the description of the knowledge, skills and competences and the resulting allocation of the individual qualifications can vary depending on the specific conditions found in the individual countries.

In individual cases it is thus necessary to assign the same qualifications to different levels in different countries. The resulting increased range of fluctuation is taken into account by assigning two levels to each qualification in the tabular overview. Therefore, there are overlaps across qualifications in the table.

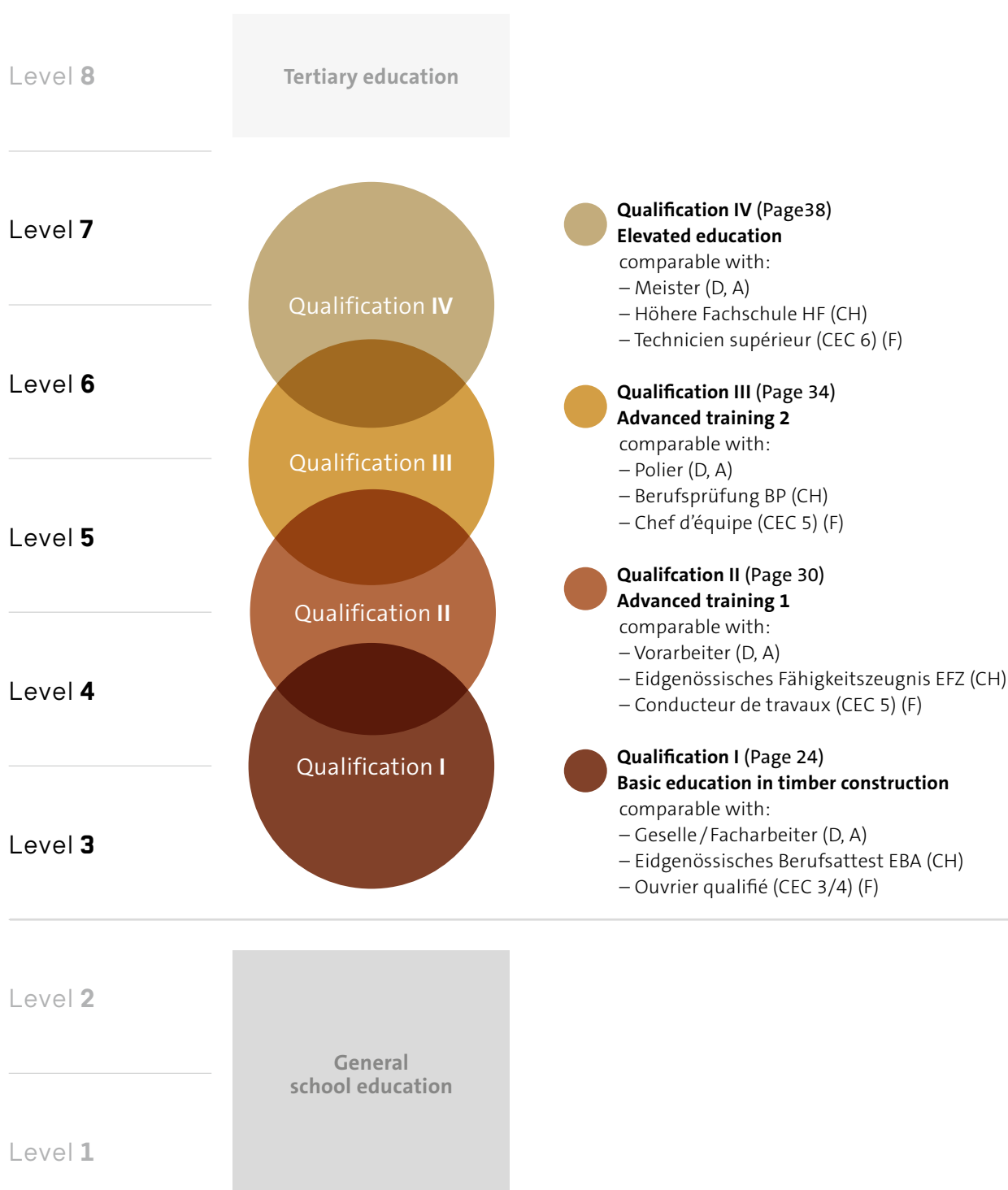
The third column shows the names of the qualifications and what qualifications they are comparable to in the countries of individual project partners.

On the following pages, readers have the opportunity to see the structural and content descriptions as a whole. Jump marks in the overviews simplify navigation.

Qualification I Basic education in timber construction	Page 24
Qualification II Advanced training in timber construction 1	Page 30
Qualification III Advanced training in timber construction 2	Page 34
Qualification IV Elevated education	Page 38

European Qualifications Framework in Timber Construction (EQF-Timber)

Levels of vocational education and training



Qualification I

Level 3/4**Vocational basic training
in timber construction****Introductory remarks**

Fundamental skills to qualify as a carpenter are acquired as part of the basic education in timber construction (Qualification I). They can be assigned to VET levels 3 or 4 of the European Qualifications Framework, depending on the starting point in each country.

In individual European countries, formal education for journeyman or skilled labourer is offered and a certificate is issued upon successful completion. From this point onward, persons having completed the training described above will be referred to as journeyman.

Abstract

A Organisation	B Production	C Realisation	D Material
<p>A1 Laws, Regulations, Standards</p> <ol style="list-style-type: none"> 1 General and wood construction-specific legal framework 2 Regulations, relevant standards and standard-compliant design 3 Business basics 4 Basics of construction site safety <p>A2 Work Preparation</p> <ol style="list-style-type: none"> 1 Project preparation and project documentation 2 Planning and construction 3 Logistics and workflow 4 Calculation, quantity calculation, procurement 	<p>B1 Wood and Wood Material Processing</p> <ol style="list-style-type: none"> 1 Material and substance 2 Work with machines and tools 3 Craft techniques <p>B2 Production of Components</p> <ol style="list-style-type: none"> 1 Manual timber constructions and joining technology 2 CNC production of timber structures and joining technology 3 Components and prefabricated elements 4 Applied structural analysis and building physics 	<p>C1 Assembly</p> <ol style="list-style-type: none"> 1 Assembly of wooden structures 2 Installation of functional layers 3 Installation of prefabricated building elements <p>C2 Renovation and Modernisation</p> <ol style="list-style-type: none"> 1 Recording of the schedule of condition and creation of a renovation concept 2 Dismantling and disposal of wood substrates, building materials and functional layers 3 Assembly and installation of timber structures, building structures and functional structures 4 Measures for the preservation and renovation of existing timber structures 	<p>D1 Building Materials</p> <ol style="list-style-type: none"> 1 Properties and selection of building materials 2 Properties and selection of building materials 3 Logistics of building materials and elements <p>D2 Machines and Tools</p> <ol style="list-style-type: none"> 1 Use and maintenance of machines and tools 2 Use and maintenance of CNC machines 3 Use and maintenance of lifting equipment

A Organisation

A1 Laws, Standards, Regulations

<p>1 General and wood construction-specific legal framework</p> <p>Journeyman</p> <p>1.1 ... are familiar with the basic legal and contractual provisions regarding the rights and obligations of the employee and the employer.</p> <p>1.2 ... name and take into account relevant ordinances and laws, especially those specific to wood construction, such as traffic laws for material transport and occupational safety regulations.</p>	<p>2 Regulations, relevant standards and standard-compliant design</p> <p>Journeyman</p> <p>2.1 ... apply specific regulations from the areas of fire, heat, sound and moisture protection and know the institutions involved.</p> <p>2.2 ... have knowledge of the professional and standard-compliant execution of layered structures and of prefabricated products and (single) components as well as fasteners.</p> <p>2.3 ... translate technical drawing rules into simple planning and manufacturing documents.</p>	<p>3 Business basics</p> <p>Journeyman</p> <p>3.1 ... know the basics of a business and company organization as well as further training opportunities.</p>	<p>4 Basics of construction site safety</p> <p>Journeyman</p> <p>4.1 ... know the basics of construction site safety and the relevant standards and regulations</p>
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A2 Work Preparation

<p>1 Project preparation and project documentation</p> <p>Journeyman</p> <p>1.1 ... know the basics of company organization with regard to order acceptance and possible advance services, as well as instruments such as performance recording, reporting and quality assurance.</p> <p>1.2 ... can assess a work and site situation and know essential elements of a construction site and occupational safety equipment.</p>	<p>2 Planning and construction</p> <p>Journeyman</p> <p>2.1 ... can perform simple measurements and read plans and descriptions as well as recognize interfaces to other trades.</p> <p>2.2 ... can create, label and dimension drawings, details and lists in accordance with standards.</p> <p>2.3 ... can create, label and dimension drawings, details and lists in accordance with standards.</p> <p>2.4 ... can apply woodworking-specific knowledge of mathematics and geometry, particularly to the fabrication of wall, roof, ceiling and stair structures.</p> <p>2.5 ... can model simple load-bearing structures and constructions by selecting suitable timber connections and observing wood preservation.</p> <p>2.6 ... can perform simple structural calculations and select suitable fasteners and connectors.</p>	<p>3 Logistics and workflow</p> <p>Journeyman</p> <p>3.1 ... know the basics of procurement, work and process planning and can apply them.</p> <p>3.2 ... know the interrelationships of logistics with occupational health and safety and other trades.</p> <p>3.3 ... are familiar with special features of wall, floor and ceiling cladding (interior and exterior) as well as built-in parts specific to wood construction and are able to take these into account in the assembly process.</p>	<p>4 Calculation, quantity takeoff, procurement</p> <p>Journeyman</p> <p>4.1 ... know the authoritative building materials and building supplies as a basis for bidding and procurement.</p> <p>4.2 ... may establish construction work areas and basic site layout.</p> <p>4.3 ... can determine material requirements and perform and interpret simple volume and weight calculations.</p>
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B Production

B1 Wood and Wood Material Processing

1 Material and substance

Journeyman

1.1 ... recognize types of wood on the basis of their specific properties and can inspect, prepare and classify materials according to their intended use or area of application.

1.2 ... can select materials according to the application and process them professionally.

2 Work with machines and tools

Journeyman

2.1 ... can organize the workplace and control tools and machines.

2.2 ... can use woodworking tools and machines, taking into account occupational safety, ergonomics and accident prevention.

2.3 ... understand the function and operation of conventional as well as CNC machines.

3 Craft techniques

Journeyman

3.1 ... can measure and mark out and prepare a plan for the work to be performed.

3.2 ... can assemble construction parts and create timber joints professionally.

3.3 ... can protect and finish wood products.

3.4 ... can safely perform processing techniques such as sawing, milling, planing and grinding.

B2 Manufacture of Components

1 Handicraft wood construction and joining technology

Journeyman

1.1 ... can conventionally assemble and join carpenter-made timber structures and load-bearing structures.

1.2 ... can transfer the dimensions required for carpentry to the structural timbers.

1.3 ... can select the appropriate fasteners and make a professional connection.

1.4 ... know truss constructions and can describe, evaluate, draw and manufacture them.

1.5 ... are familiar with roof shapes, roof truss constructions, roof ellipses as well as roof superstructures (e.g. dormers, etc.) and are able to describe, evaluate, draw and manufacture them.

1.6 ... Carpenters know wall and ceiling constructions and can describe, evaluate, draw and manufacture them.

2 CNC production of wooden structures and joining technology

Journeyman

2.1 ... know the operation of CNC machines and the basics of their operation.

2.2 ... know the CAD/CAM programs required to control CNC machines.

2.3 ... know the basics of factory assembly of wooden structures on CNC machines.

3 Components and prefabricated elements

Journeyman

3.1 ... know the work processes and construction forms in the manufacture of prefabricated components and elements (walls, ceilings, roofs).

3.2 ... can produce prefabricated components and elements (walls, ceilings, roofs).

3.3 ... know different types of stairs and their components and can manufacture them.

3.4 ... know and can fabricate floor systems and other exterior wood structures.

3.5 ... know and can make carpenter-made gate and door structures.

3.6 ... know different construction types of wooden bridges and can manufacture them.

4 Applied structural analysis and building physics

Journeyman

4.1 ... know structural principles for timber constructions and prefabricated timber elements and can calculate them.

4.2 ... know the physical properties of layers and layer structures in timber constructions and prefabricated timber elements (walls, ceilings, roofs) and can calculate them.

C Realisation

C1 Assembly

1 Assembly of timber constructions

Journeyman

- 1.1** ... can prepare material transport to match project requirements.
- 1.2** ... can professionally install simple building service installations in construction elements assembled on site or prefabricated.
- 1.3** ... can erect load-bearing structures in a professional manner while complying with occupational health and safety requirements.
- 1.4** ... can properly install interior and exterior cladding and the necessary substructures on floors, walls, ceilings and roofs.
- 1.5** ... can install substructures for roofing as well as solar and photovoltaic systems according to the manufacturer's specifications, taking into account the underlying functional layers.
- 1.6** ... are familiar with various borders of the roof, including borders of the roof for solar systems, and can install them properly.
- 1.7** ... can properly install window jambs/window linings including connections to adjoining components in walls and roofs.

2 Installation of functional layers

Journeyman

- 2.1** ... can install insulation layers correctly, taking into account basic principles of building physics.
- 2.2** ... can properly install protective layers taking into account basic principles of building physics and the manufacturer's specifications.
- 2.3** ... can properly install subroofs, taking into account basic principles of building physics and the manufacturer's specifications, and know the properties and requirements of water-bearing layers.
- 2.4** ... can properly apply liquid protective coatings and finishes according to the manufacturer's instructions.

3 Installation of prefabricated building elements

Journeyman

- 3.1** ... are able to install prefabricated components, building elements and building products professionally in accordance with the individual installation situation, taking into account the basic principles of building physics and the manufacturing specifications.
- 3.2** ... can properly install windows and shading elements (e.g. shutters, etc.) in walls and roofs, including connecting them to adjoining building components and component layers.
- 3.3** ... can properly install prefabricated stairs and railings.
- 3.4** ... can properly install doors and door frames or door linings.
- 3.5** ... can properly install energy system components on roofs and walls.

C2 Renovation and Modernising

1 Recording of the schedule of condition and creation of a renovation concept

Journeyman

- 1.1** ... can take measurements and collect data during as-built surveys and document the data in a professional manner.
- 1.2** ... can plan and describe the proper sequence of maintenance and renovation measures on wooden structures.

2 Dismantling and disposal of wood substrates, building materials and functional layers

Journeyman

- 2.1** ... can dismantle different timber constructions and layered structures in a professional manner while observing occupational health and safety measures.
- 2.2** ... can properly dispose of or recycle material generated during deconstruction.

3 Assembly and installation of wood structures, building structures and functional structures

Journeyman

- 3.1** ... are able to erect timber structures and layered superstructures in a professional manner during conversion and renovation work and to form connections to the existing building fabric in accordance with basic principles of building physics.
- 3.2** ... can professionally install insulation and functional layers as part of conversion and renovation measures, taking into account the basic principles of building physics.
- 3.3** ... can properly install and assemble energy system elements into existing building fabric.

4 Measures for the preservation and renovation of existing wooden structures

Journeyman

- 4.1** ... recognize elements of wooden load-bearing structures in need of repair and can plan and apply appropriate repair measures.
- 4.2** ... may apply and place liquid and solid functional coatings to protect existing wood structures.

D Material

D1 Building Materials

1

Properties and selection of building materials

Journeyman

- 1.1** ... know the properties of materials and building materials for wooden structures or roofing and can select and use them properly.
- 1.2** ... know the functions of protective layers and their structural properties.
- 1.3** ... are able to install the correct materials in the correct sequence from the point of view of building physics and recognize the contexts of building technology and the demands of property developers.
- 1.4** ... know the properties of different types of insulation and can install them properly to protect natural resources. They use the insulations according to their properties as heat, sound or fire insulation and know possible combinations of the insulation types.
- 1.5** ... can distinguish and assess wood species and wood-based materials on the basis of their properties and describe their various commercial forms.
- 1.6** ... know wood pests and can name and select structural and chemical measures for wood protection and argue their use.
- 1.7** ... can describe the storage and installation of panel materials as well as building materials and auxiliary building materials. They can make a job-related selection and justify it.

2

Basics of construction elements and fastening technology

Journeyman

- 2.1** ... can make simple doors and gates and use the appropriate hardware in each case.
- 2.2** ... can produce exterior floors and use weather-resistant wood and joints for this purpose.
- 2.3** ... assemble prefabricated components and building products independently and professionally.
- 2.4** ... select and use fasteners according to the application.

3

Logistics of building materials and elements

Journeyman

- 3.1** ... properly inspect, store and protect timber, materials and building supplies.
- 3.2** ... can implement measures for the proper storage and drying of wood and wood-based materials.
- 3.3** ... independently prepare hardware, materials and tools for use.
- 3.4** ... check incoming goods and deliveries and organize their transport.
- 3.5** ... load and unload vehicles according to instructions.
- 3.6** ... manage the stock management of materials, equipment and tools. They check consumption, orders, deliveries and fill out material purchase forms on a daily basis.

D2 Machines and Tools

1

Use and maintenance of machines and tools

Journeyman

- 1.1** ... can name woodworking tools and machines and explain and plan their use, taking into account occupational safety measures. In doing so, they observe the instructions and regulations of the manufacturers.
- 1.2** ... operate machines and tools, use them professionally, resource-efficiently and with care.
- 1.3** ... perform maintenance work and carry out simple upkeeping tasks.

2

Use and maintenance of CNC machines

Journeyman

- 2.1** ... describe the mode of operation and areas of application of various CNC machines.
- 2.2** ... under supervision – load the CNC machine with tools and workpieces in the correct sequence.
- 2.3** ... apply the manufacturers' specifications and the company's own safety regulations when working with CNC machines.
- 2.4** ... know the main principles of operating numerically controlled machines.

3

Use and maintenance of lifting equipment

Journeyman

- 3.1** ... use lifting devices including those requiring approval (freight elevator, crane, etc.) in accordance with regulations.



Qualification II

Level 4/5

Advanced training 1**Introductory remarks**

The first level of further education comprises training measures which enable carpenters to increase their competences beyond the basic education and to assume their first leadership tasks.

In some European countries, carpenters can complete an education to become a foreman. The completion of the training is confirmed by a certificate. From this point onward, persons having completed the training described above will therefore be called foreman in timber construction.

Abstract

A Organisation	B Production	C Realisation	D Material
<p>A1 Laws, Regulations, Standards 0 Basics Level 3/4 1 Applied construction site safety 2 Wood construction standards</p> <p>A2 Work Preparation 0 Basics Level 3/4 1 Measurement control 2 Material planning 3 Application of industry-specific software tool</p> <p>A3 Business Administration 1 Employee management 2 Environmental, quality, sustainability management and health protection</p> <p>A4 Project and Construction Management 1 Site logistics 2 Construction supervision, documentation and quality assurance 3 Coordination of the trades</p>	<p>B1 Wood and Wood-Based Materials 0 Basics Level 3/4</p> <p>B2 Production of Components 0 Basics Level 3/4 1 Applied building physics 2 Calculate, crack and manufacture complex components</p>	<p>C1 Assembly 0 Basics Level 3/4 1 Assemble complex components 2 Ensure environmental protection on the construction site</p> <p>C2 Renovation and Modernisation 0 Basics Level 3/4 1 Carry out complex conversions and renovations 2 Carry out complex deconstruction</p>	<p>D1 Building Materials 0 Basics Level 3/4</p> <p>D2 Machines and Tools 0 Basics Level 3/4</p>

A Organisation



A1 Laws, Regulations, Standards

1

Applied construction site safety

Foremen

- 1.1 ... can safely control the workplace and scaffolds and fall edges.
- 1.2 ... can ensure the use of personal protective equipment and monitor the personal safety of employees.
- 1.3 ... can monitor the use of tools and machines in accordance with standards and regulations.
- 1.4 ... can participate in the administrative processing of the safety concept on construction sites.

2

Wood construction standards

Foremen

- 2.1 ... know the European timber construction standards and rules.
- 2.2 ... can apply the standards and regulations to their own projects.

A2 Work Preparation

1

Measurement control

Foremen

- 1.1 ... can create dimensional drawings and simple dimensions.
- 1.2 ... can calculate dimensions on complex components.
- 1.3 ... can determine the required quantities and make a cost estimate on the basis of determined measurements.

2

Material planning

Foremen

- 2.1 ... can calculate required materials based on construction and project planning and coordinate material logistics.

3

Application of industry-specific software tools

Foremen

- 3.1 ... can use digital tools (software) for procurement, processing, production and distribution.
- 3.2 ... know the basics of computer and data security and can apply them in their own company.
- 3.3 ... can analyse and process data using digital tools.
- 3.4 ... know the most important digital tools for timber construction planning and can use them.
- 3.5 ... know the most important digital tools for controlling CNC machines and can use them.
- 3.6 ... can set up and carry out projects within the framework of „Building Information Management“.

A Organisation

A

A3 Business Administration

1

Employee management

Foremen

- 1.1 ... can lead one or more teams and participate in the implementation of the work.
- 1.2 ... can explain work and issue work orders.
- 1.3 ... can ensure the practical training of apprentices.
- 1.4 ... can control the execution of work.
- 1.5 ... can control the plans for the operation maintenance.
- 1.6 ... can select, plan and determine personnel resources.

2

Environmental, quality, sustainability management and health protection

Foremen

- 2.1 ... can define and ensure quality and environmental standards for their own company.
- 2.2 ... are able to develop a crisis and risk management concept for their own company.
- 2.3 ... can create a company-specific safety concept and check that it is implemented adequately.

A4 Project and Construction Management

1

Site logistics

Foremen

- 1.1 ... can plan the next work assignment.
- 1.2 ... can coordinate the construction site setup.
- 1.3 ... can organise, pack, load and secure transport for the construction site.

2

Construction supervision, documentation and quality assurance

Foremen

- 2.1 ... can obtain and pass on order-related information and documents.
- 2.2 ... can write construction site, material and government reports.
- 2.3 ... can monitor the progress of the construction and the organisation of the office.
- 2.4 ... can check measurements and plans on the construction site.
- 2.5 ... can recognise and report discrepancies between plan and object.
- 2.6 ... can control the quality of the work performed.
- 2.7 ... can ensure the execution of the work in the specified period of time.

3

Coordination of the trades

Foremen

- 3.1 ... know the existing trades in the construction company and their peculiarities.
- 3.2 ... can communicate with the different trades and take them into account in their own work.
- 3.3 ... can integrate other trades into site and time planning.

B Production

B

B2 Production of components

1

Applied building physics

Foremen

- 1.1 ... know the most important principles of building physics and can apply them in the working environment.
- 1.2 ... know the most important basics of fire protection concepts and can implement them on the construction site.

2

Calculate, crack and manufacture complex components

Foremen

- 2.1 ... can calculate complex building components on the basis of an existing plan.
- 2.2 ... can lay out complex components on the basis of an existing plan.
- 2.3 ... can produce complex components on the basis of an existing planning.

C Realisation

C

C1 Assembly

1

Assemble complex components

Foremen

- 1.1 ... can organise the assembly of complex components according to plan.
- 1.2 ... can carry out and supervise the assembly of complex components.

2

Ensure environmental protection on the construction site

Foremen

- 2.1 ... can ensure the most important measures for environmental protection on the construction site.
- 2.2 ... can organise the proper disposal of residual materials.

C2 Renovation and Modernisation

1

Carry out complex refurbishments and renovations

Foremen

- 1.1 ... can control plans for complex refurbishments and renovations.
- 1.2 ... can carry out complex refurbishments and reconstructions according to plan.

2

Carry out complex reverting works

Foremen

- 2.1 ... can control plans for complex refurbishments.
- 2.2 ... are able to carry out complex refurbishments in accordance with the plan.

Qualification III

Level 5/6

Advanced training 2

Introductory remarks

The second level of further education comprises training measures which enable carpenters to increase their competences beyond the basic education and the first further education level and to assume more extensive leadership tasks in the

preparation, management and completion of timber construction projects.

In some European countries, the successful completion of the corresponding training measures is confirmed by a certificate and the award of the title of foreman in timber construction.

Abstract

A Organisation	B Production	C Realisation	D Material
<p>A1 Laws, Regulations, Standards 0 Basics Level 3/4 1 Applied construction site safety 2 Wood construction standards</p> <p>A2 Work Preparation 0 Basics Level 3/4 1 Measurement 2 Application of industry-specific software tools</p> <p>A3 Business Administration 1 Employee management 2 Environmental, quality, sustainability management and health protection</p> <p>A4 Project and Construction Management 1 Preparing, managing and completing timber construction projects 2 Construction supervision, documentation and quality assurance 3 Coordination of the trades 4 Site logistics</p>	<p>B1 Wood and Wood-Based Material Process 0 Basics Level 3/4</p> <p>B2 Production of Components 0 Basics Level 3/4 1 Applied structural analysis and building physics</p>	<p>C1 Assembly 0 Basics Level 3/4</p> <p>C2 Renovation and Modernisation 0 Basics Level 3/4</p>	<p>D1 Building Materials 0 Basics Level 3/4</p> <p>D2 Machines and Tools 0 Basics Level 3/4</p>

A Organisation

A1 Laws, Regulations, Standards

1

Applied construction site safety

Timber construction Foremen

- 1.1 ... are familiar with the legal and normative requirements relating to timber construction in connection with a construction project.
- 1.2 ... are able to participate in the development of safety concepts (occupational safety, environmental protection and health protection) and then implement them.

2

Wood construction standards

Timber construction Foremen

- 2.1 ... know the European timber construction standards and rules.
- 2.2 ... can apply the standards and regulations to their own projects.

A2 Work Preparation

1

Measurements

Timber construction Foremen

- 1.1 ... are able to take measurements of complex structures.
- 1.2 ... can check planning documents (plans, drawings, material lists, assembly instructions) for plausibility and implement them in an economical and goal-oriented manner.
- 1.3 ... prepare preliminary measurements on the basis of planning documents.
- 1.4 ... can create dimensions using planning documents and in situ.

2

Application of industry-specific software tools

Timber construction Foremen

- 2.1 ... can use digital tools (software) for procurement, processing, production and distribution.
- 2.2 ... know the basics of computer and data security and can apply them in their own company.
- 2.3 ... can analyse and process data using digital tools.
- 2.4 ... know the most important digital tools for timber construction planning and can use them.
- 2.5 ... know the most important digital tools for controlling CNC machines and can use them.
- 2.6 ... can set up and carry out projects within the framework of „Building Information Management“.

A3 Business Administration

1

Employee management

Timber construction Foremen

- 1.1 ... manage subordinate employees operationally. They help to define requirements profiles for employees and to draw up training plans.
- 1.2 ... implement training plans and train employees. They help to ensure the learning progress of the apprentices.

2

Environmental, quality, sustainability management and health protection

Timber construction Foremen

- 2.1 ... can define and ensure quality and environmental standards for their own company.
- 2.2 ... can develop a crisis and risk management concept for their own company.
- 2.3 ... can create a company-specific safety concept and check that it is implemented adequately.

A Organisation

A

A4 Project and Construction Management

<p>1 Preparing, managing and completing timber construction projects</p> <p>Timber construction Foremen 1.1 ... conduct consultation meetings. 1.2 ... process tenders and prepare offers. 1.3 ... are able to carry out simple building permit procedures. 1.4 ... prepare order confirmations and are able to process work contracts. 1.5 ... carry out detailed planning and prepare the working drawings. 1.6 ... draw up and implement construction programs. They ensure workload and resource planning and carry out building inspections. 1.7 ... are able to perform post-calculations and prepare invoices. 1.8 ... perform conformity testing and prepare declaration of conformity.</p>	<p>2 Construction supervision and documentation</p> <p>Timber construction Foremen 2.1 ... manage projects and monitor their progress. They carry out suitable checks on the work carried out. They record the results in a suitable form.</p>	<p>3 Coordination of the trades</p> <p>Timber construction Foremen 3.1 ... coordinate the cooperation with other work groups. 3.2 ... award and supervise the work of subcontracts.</p>	<p>4 Site logistic</p> <p>Timber construction Foremen 4.1 ... ensure the logistics of their projects. They plan and coordinate the deployment of employees and materials. 4.2 ... plan and coordinate the deployment of employees. They hand over projects or parts of projects to timber construction foremen. 4.3 ... plan and coordinate the use of materials and elements. They organize the receipt, storage, transport, processing and disposal of materials. 4.4 ... obtain the necessary permits for the use of construction site installations.</p>
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B Production

B

B2 Production of Components

<p>1 Applied structural analysis and building physics</p> <p>Timber construction Foremen 1.1 ... design, dimension and optimize components and building objects. 1.2 ... create fire protection concepts for small objects.</p>
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Qualification IV

Level 6/7

Elevated education

Introductory remarks

The qualification obtained within the advanced vocational education in timber construction represents the highest level of further education in carpentry. In some countries, formal courses to become

a master carpenter can be completed, the successful completion of which is confirmed by a certificate. To ensure the permeability of VET systems, master carpenters can extend their qualifications within the higher education system.

Abstract

A Organisation	B Production	C Realisation	D Material
<p>A1 Laws, Regulations, Standards 0 Basics Level 3/4/5 1 Building law, regional planning, land register law 2 Labour law 3 Corporate and commercial law</p> <p>A2 Work Preparation 0 Basics Level 3/4/5</p> <p>A3 Business Administration 0 Basics Level 5 1 Operations management 2 Human resources management 3 Financial management 4 Marketing</p> <p>A4 Project- and Building Management 0 Basics Level 5 1 Project coordination 2 Project implementation 3 Project documentation</p>	<p>B1 Wood and Wood-Based Materials Processing 0 Basics Level 3/4/5</p> <p>B2 Production of Components 0 Basics Level 3/4/5 1 In-depth structural analysis and building physics</p>	<p>C1 Assembly 0 Basics Level 3/4/5</p> <p>C2 Renovation and Modernisation 0 Basics Level 3/4/5</p>	<p>D1 Building Materials 0 Basics Level 3/4/5</p> <p>D2 Machines and Tools 0 Basics Level 3/4/5</p>

A Organisation

A

A1 Laws, Regulations, Standards

<p>1 Building law, regional planning, land register law</p> <p>Master carpenters</p> <p>1.1 ... know the basic legislation in building law.</p> <p>1.2 ... know the basics of spatial planning.</p> <p>1.3 ... know the basics of the land register and land register law.</p> <p>1.4 ... can apply the basics of building law, regional planning and land registry law to their own projects.</p>	<p>2 Labour law</p> <p>Master carpenters</p> <p>2.1 ... know the basics of labour law.</p> <p>2.2 ... can apply the basic principles of labour law to the requirements in the company.</p>	<p>3 Corporate and commercial law</p> <p>Master carpenters</p> <p>3.1 ... know the basics of business law.</p> <p>3.2 ... know the basics of trade law.</p> <p>3.3 ... are able to apply the basics of company and trade law to the requirements of the company.</p>
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A3 Business Administration

<p>1 Operations management</p> <p>Master carpenters</p> <p>1.1 ... know the basics of business plan and mission statement development and can apply them in their own business.</p> <p>1.2 ... are able to further develop their own company and plan a succession plan.</p> <p>1.3 ... know the basics of operational processes and are able to plan them.</p> <p>1.4 ... know the basics of resource planning and can apply them in their own company.</p>	<p>2 Human resources management</p> <p>Master carpenters</p> <p>2.1 ... can define framework conditions for personnel and personnel management.</p> <p>2.2 ... can conduct job interviews and recruit employees.</p> <p>2.3 ... can lead employees according to their position.</p> <p>2.4 ... can conduct employee appraisals.</p>	<p>3 Financial management</p> <p>Master carpenters</p> <p>3.1 ... know the basics of budget planning and can create a budget for their own business.</p> <p>3.2 ... know the basics of investment planning and are able to apply them in their own company.</p> <p>3.3 ... can determine operating figures, assess accounting and ensure the liquidity of the company.</p> <p>3.4 ... can develop the basis for an annual financial statement.</p>	<p>4 Marketing</p> <p>Master carpenters</p> <p>4.1 ... know the basics of marketing and can create market analyses and marketing concepts.</p> <p>4.2 ... are able to implement marketing concepts within the scope of their own business activities.</p> <p>4.3 ... can advise customers and acquire orders.</p> <p>4.4 ... can process complaints.</p> <p>4.5 ... are able to establish and maintain a network relevant to the company's activities.</p>
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A Organisation

A

A4 Project and Construction Management

1 Project coordination

Master carpenters

- 1.1 ... are able to create, review and edit performance specifications.
- 1.2 ... can create and validate offers.
- 1.3 ... can develop work contracts within the scope of projects.
- 1.4 ... can create and implement construction schedules and resource plans.

2 Project implementation

Master carpenters

- 2.1 ... can manage and control timber construction projects in the function of the client.
- 2.2 ... can take over the construction management of timber construction projects independently.

3 Project documentation

Master carpenters

- 3.1 ... can monitor and document ongoing projects.
- 3.2 ... can determine masses and prepare invoices within the scope of projects.
- 3.3 ... can recalculate projects and project parts and analyze post-calculations.
- 3.4 ... can monitor the planning and execution of timber construction projects.



B Production

B

B2 Production of Components

1

In-depth structural analysis and building physics

Master carpenters

1.1 ... can evaluate timber construction projects as a whole and plan them ready for execution.

1.2 ... can plan, design and calculate the specific execution of building components and structures made of wood and wood-based materials.

1.3 ... can select, plan and calculate the fasteners required for building components and structures made of wood and wood-based materials.

1.4 ... have knowledge of building elements and building systems with regard to their construction and building physics and are able to select and plan them.



Chapter 5

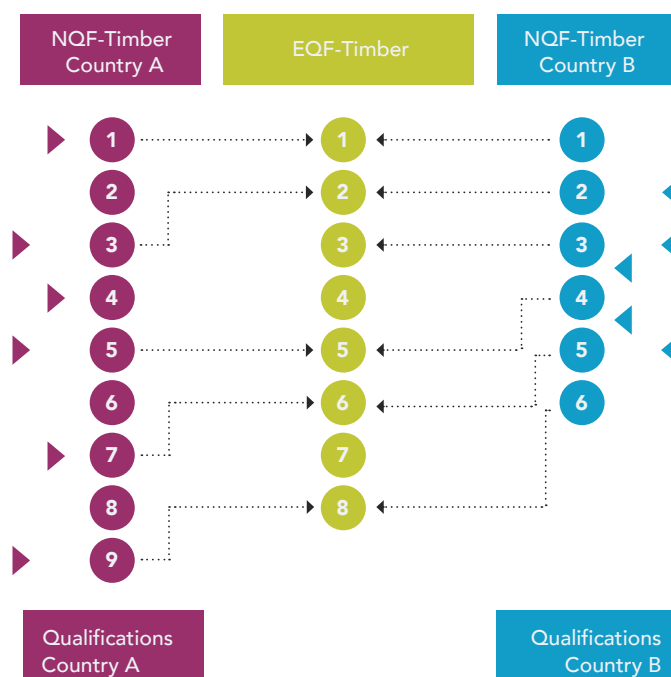
Use and scope of EQF-Timber: From theory to practical application

In order for the European Qualifications Framework to be used in everyday practice of timber construction, its advantages must be clear and it must be able to be applied practically. In particular, it must be able to be used by stakeholders in timber construction who have not yet acquired a deep understanding of this tool.

The following example of VET in Switzerland is used to show the possibilities that EQF-Timber opens up when combined with a national qualifications framework for timber construction that might already exist or be under development. In Switzerland, EQF-Timber is integrated in the digital learning platform *Holzbau-LAB*.

The “LAB” in *Holzbau-LAB* is the acronym for learning, working (Arbeiten) and educating (Bilden). But it is also an abbreviation for laboratory, a place in which knowledge is acquired, increased, deepened and shared in the professional practice. The knowledge and activities of the timber construction industry contained in *Holzbau-LAB* are competence- and practice-oriented and can be accessed and learned at any time. The digital learning environment is intended to create a lasting connection for all people working in the timber construction industry (employees, employers, product and social partners) from trial apprenticeships to lifelong learning and advanced VET – on demand, at any time and any place and on any topic.

EQF-Timber as meta framework for comparing qualification standards in timber construction



In a first step, EQF-Timber was implemented for the basic education level. Additional competences acquired through further education and additional qualifications will be addressed in a second phase and made available in the future. By matching NQF-Timber with EQF-Timber, a direct link between theory and practice can be established.

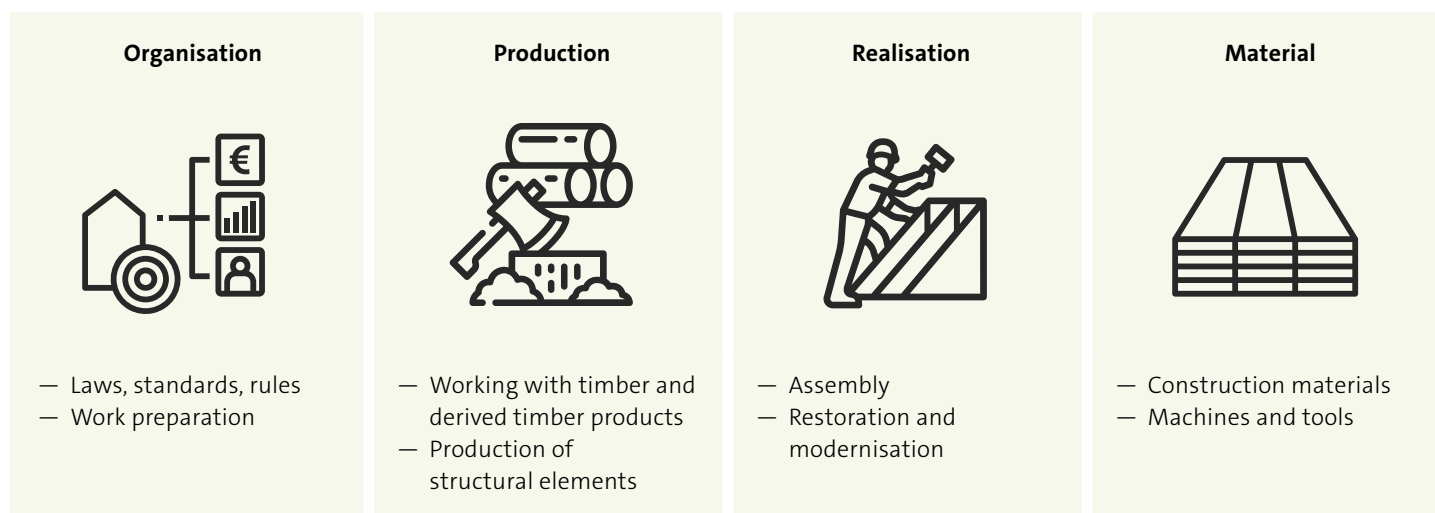
The digital implementation allows interested employees and companies of the timber construction industry to compare the competences described in EQF-Timber.

Companies are therefore provided with an easy way to relate the competences of an applicant from a foreign country to the Swiss education and career system. The applicant's suitability for a specific job profile can thus be determined rapidly.

As an example, the practical implementation of the comparison of the content of a national qualifications framework for timber construction (Switzerland) with those of EQF-Timber as a reference framework is shown on pages 46/47.

How to gain free access to LAB:
Register your personal details. After having created your account, you can access *Holzbau-LAB*.

Core competences: Basic education for carpentry





Why EQF-Timber?

EQF-Timber not only makes it easier for employers to find employees in all of the European Union. By way of a self-assessment, applicants can also relate their competence profile to those of the European target country. This is possible regardless of whether the applicant has acquired their knowledge, skills and competences through a formal education course or by non-formal means, such as practical experience and guidance on the job. The applicant quickly gains an overview of their personal competences. It becomes apparent in which areas the competences are exceeded and where they are below what is expected. The determination of possible deficits in knowledge, skills and competences constitutes the first step of this process.

In the following step, Holzbau-LAB offers interested parties the possibility to **gain the competences** they lack for successful validation. The competences are meant to be gained by way of self-study wherever possible. Its digital availability offers knowledge acquisition independent of time, place and topic. Relevant offers will be implemented and made available in the near future.

In some cases, it is also important to obtain information about wages. In the past, obtaining this type of information from the relevant entities required a great deal of effort. In the future, this type of request will be able to be dealt with much more easily and logically. EQF-Timber as reference framework delivers the sorely needed transparency required for the fair setting of wages.

The digital EQF-Timber offers further advantages in the upcoming reforms of country-specific training measures or the development of new training courses. The international comparability of competences illustrates country-specific standards and possibilities for future developments. National timber construction associations can thus also profit from EQF-Timber.

The digital implementation by Holzbau Schweiz allows the advantages of EQF-Timber in Holzbau-LAB to be seen clearly.

Summary of use and advantages

For national economies, employers, employees, validation entities and providers of VET, the use of EQF-Timber as a qualifications framework offers numerous advantages:

Current and future skilled workers can classify their competences according to a documented basis. They also gain a clear understanding of their potential for development within their profession.

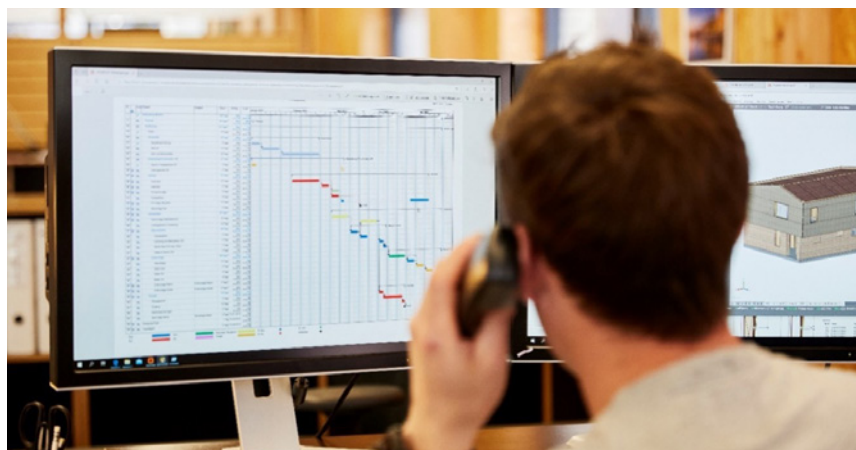
Companies can make better assessments of the qualifications of applicants and employees and make informed decisions about training and development measures.

VET institutions in timber construction can align their education and training offers to the European education standards presented in EQF-Timber. In collaboration with institutions of other European countries it will then be possible to develop and implement manifold educational perspectives.

Timber construction associations will be able to provide extended offers for vocational education, training and development to their members.

Based on EQF-Timber, **countries** seeking to improve the conditions for VET can stimulate significant developments in the big economic sector of timber construction. This is accompanied by numerous benefits: improvement of education and training standards, incentives for employment, decrease of general and youth unemployment, improved conditions for cross-border mobility and reduction in the shortage of skilled workers as a significant contribution to economic development in the medium to long term.

In the **European Union**, the prerequisites for the validation of knowledge, skills and competences are facilitated for professionals in the area of timber construction, thus improving conditions for transnational mobility.



C Realisation							D Material					
C1 Assembly		C2 Restoration and modernisation					D1 Building materials		D2 Machines and tools			
Assembly of timber structures	Installation of roof layers	Installation of prefabricated structural elements	Inventory, rehabilitation concept	Dismantling and disposal	Assembly and installation	Maintenance and rehabilitation	Building materials (properties and selection)	Structural elements and fixtures (fundamentals)	Logistics of building materials and structural elements	Machines / tools (use and maintenance)	CNC machines (use and maintenance)	Lifting gear (use and maintenance)
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EQF-Timber
Process structure
and competence areas

NQF-Timber Switzerland
Process structure
and competence areas

- 1 Work preparation**
 - 1.1 Taking measurements
 - 1.2 Creating construction drawings and lists
 - 1.3 Safely operating, servicing and maintaining equipment
 - 1.4 Preparing material transport
 - 1.5 Preparing and securing working area
 - 1.6 Knowing and implementing business organisation
- 2 Preparation of structural elements**
 - 2.1 Preparing timber structures with a machine (CNC)
 - 2.2 Preparing timber structures the conventional way
- 3 Prefabrication of structural elements**
 - 3.1 Producing prefabricated structural elements (walls, roofs, floors)
 - 3.2 Inserting building service installations into prefabricated elements
 - 3.3 Prefabricating roof and wall linings
 - 3.4 Manufacturing straight stairs
 - 3.5 Manufacturing simple doors and gates
 - 3.6 Manufacturing exterior flooring
 - 3.7 Protecting and finishing timber products
- 4 Erection of timber structures**
 - 4.1 Erecting structural systems
 - 4.2 Installing prefabricated components
 - 4.3 Dismantling timber structures
 - 4.4 Restoring and rehabilitating structures and structural elements
- 5 Installation of protective layers**
 - 5.1 Installing the underlayment
 - 5.2 Installing protective layers
 - 5.3 Installing thermal insulation
 - 5.4 Applying acoustic protection for timber constructions
 - 5.5 Applying fire protection for timber constructions
- 6 Installation of cladding/decking**
 - 6.1 Installing the substructure roof covering
 - 6.2 Installing the border of the roof
 - 6.3 Installing exterior cladding
 - 6.4 Installing interior cladding
- 7 Installation of prefabricated products**
 - 7.1 Installing roof and wall windows and window blinds
 - 7.2 Installing window linings
 - 7.3 Installing stairs and railings
 - 7.4 Installing door linings and doors
 - 7.5 Installing gates
 - 7.6 Installing timber flooring (solid-wood and parquet flooring)
 - 7.7 Installing components of energy systems

Chapter 6

Outlook

How it all started

The idea for the creation of the presented European Qualifications Network (EQF-Timber), which has been developed in stages since 2018, is based on the results of the Erasmus+ project on VET in European timber construction*, in which the variety and complexity and the resulting differing development speeds of VET were illustrated. The plan of a follow-on project was spurred on by the fact that European timber construction continues to be on the upswing. This was complemented by the increasing realisation that a significantly higher number of skilled workers need to be trained than had previously been the case in order to meet the challenges of the future.

Timber construction education in Europe

The generally positive starting position of European timber construction was thus clear and encouraging, while the implementation of the project goal against the background of the highly complex VET situation proved quite challenging. Education programmes for aspiring wood workers are available in many European countries. The VET systems of individual countries, however, exhibit significant heterogeneity with respect to their systems and content. The content and the competences imparted to the participants differ greatly, even though the titles on the certificates and diplomas are at least sometimes identical.

* Progress through collaboration – Advancing education and training in timber construction

Insight and action

The need for a common qualification framework for European timber construction emerged early on with EQF-Timber. At the same time, the project initiators shared the vision that this tool should be a neutral and universal reference that the various countries, professional organisations and associations, as well as interested experts and educational establishments can refer to.

Project implementation

The project was therefore started and European partners were encouraged to participate. In February 2020, with the worldwide pandemic looming, the kick-off meeting finally took place in Ostfildern near Stuttgart.

Significance and perspective of EQF-Timber

Roughly two-and-a-half years later, the result of the work is available: EQF-Timber is a tool which is new for European timber construction and unique in this form. The project partners from Germany, France, Luxembourg, Austria, Sweden and Switzerland have created a reference framework with a wide variety of application possibilities. Using this tool, important degrees and diplomas of the various VET systems in European timber construction can now be compared better than before ¹. Timber construction competences of individuals can be seen more quickly than previously. Furthermore, training requirements can be identified more accurately and measures to increase competences can be implemented rapidly and efficiently, in an analogue or digital manner.

¹ see Chapter 5

EQF-Timber is also a useful tool for development measures in the area of VET in timber construction. The results of the first Erasmus+ project, initiated and carried out by Timber Construction Europe, form a knowledge base which provides information about which countries offer which VET systems. EQF-Timber allows the “results” of these VET systems to be compared with each other. Due to their differing approaches, countries will hopefully feel compelled to examine their own approaches and adopt the approaches of others where appropriate.

It is possible that a positive spiral of development of VET and economic development in the timber construction sector will emerge across countries.

Further added value

This project has yielded further results beyond those with respect to content and structure. During the work on this project, a promising transnational network with VET institutions in the area of timber construction from different countries has emerged, which will hopefully last beyond the project horizon and represents a potential seedbed for future collaboration.



Cooperation

Finally, a few words about the cooperation within the project. At the time of the project application, it was assumed that the project partners would meet regularly, especially face to face, in order to advance the project work. The pandemic, however, forced the project into digital mode, which turned out to be a stroke of luck in some ways. Compared to face-to-face project meetings, the digital meetings were generally much easier to organise and very efficient to hold. In terms of content, better results were achieved in a shorter amount of time.

However, the personal exchange and the 1:1 immersion in different national education systems suffered. For possible follow-up projects, it will be important to bring the positive aspects of analogue and digital project management together so that the good elements from both “worlds” can be utilised in the future.



Contact

Contact for further information

If you have any questions about past projects or are interested in collaborating on a further project in the area of vocational education and training in timber construction, you are welcome to contact Timber Construction Europe.

Please send your request by email to the following address:

info@timber-construction.eu

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